DOCUMENT RESUME

ED 187 571 SE 030 973

AUTHOR Warfield, John N.
TITLE Development of an Interpretive Structural Model and Strategies for Implementation Based on a Descriptive and Prescriptive Analysis of Resources for Environmental Education/Studies. Evaluating a Regional Environmental Learning System, Volume V.
INSTITUTION Virginia Univ., Charlottesville. School of Engineering and Applied Science.
SPONS AGENCY Office of Education (DHEW), Washington, D.C. Office of Environmental Education.
REPORT NO UVA/522032/EE79/123
PUB DATE 31 Aug 79
CONTRACT 300-700-4028
NOTE 163p.; For related documents, see SE 030 969-974 and ED 173 172.

EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS *Case Studies; *Change Strategies; Curriculum Development; *Educational Assessment; *Educational Needs; Educational Planning; Educational Research; Elementary Secondary Education; *Environmental Education; Evaluation; Models; Nonformal Education; Postsecondary Education; *Science Education

ABSTRACT

This volume deals with the evaluation of a Regional Environmental Learning System (RELS). Five contexts of local evaluation are discussed: (1) evaluation by a board of directors, (2) evaluation of impact of inservice, (3) evaluation of bias, (4) evaluation of student achievement, and (5) ethnographic evaluation of a community-based program. Case studies of programs resembling the RELS model are presented and the organization of an evaluation study is described. (RE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED187571

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

RESEARCH LABORATORIES FOR THE ENGINEERING SCIENCES

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

UNIVERSITY OF VIRGINIA

Charlottesville, Virginia 22901

DEVELOPMENT OF AN INTERPRETIVE STRUCTURAL MODEL AND STRATEGIES FOR IMPLEMENTATION BASED ON A DESCRIPTIVE AND PRESCRIPTIVE ANALYSIS OF RESOURCES FOR ENVIRONMENTAL EDUCATION/STUDIES

EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

VOLUME V

Submitted to:

Office of Environmental Educaton
Department of Health, Education and Welfare
400 Maryland Avenue, S.W.
FOB #6, Room 2025
Washington, D. C. 20202

Submitted by:

John N. Warfield

Report No. UVA/522032/EE79/123

August 1979

SE 030 973

RESEARCH LABORATORIES FOR THE ENGINEERING SCIENCES

Members of the faculty who teach at the undergraduate and graduate levels and a number of professional engineers and scientists whose primary activity is research generate and conduct the investigations that make up the school's research program. The School of Engineering and Applied Science of the University of Virginia believes that research goes hand in hand with teaching. Early in the development of its graduate training program, the School recognized that men and women engaged in research should be as free as possible of the administrative duties involved in sponsored research. In 1959, therefore, the Research Laboratories for the Engineering Sciences (RLES) was established and assigned the administrative responsibility for such research within the School.

The director of RLES—himself a faculty member and researcher—maintains familiarity with the support requirements of the research under way. He is aided by an Academic Advisory Committee made up of a faculty representative from each academic department of the School. This Committee serves to inform RLES of the needs and perspectives of the research program.

In addition to administrative support, RLES is charged with providing certain technical assistance. Because it is not practical for each department to become self-sufficient in all phases of the supporting technology essential to present-day research, RLES makes services available through the following support groups: Machine Shop, Instrumentation, Facilities Services, Publications (including photographic facilities), and Computer Terminal Maintenance.

DEVELOPMENT OF AN INTERPRETIVE STRUCTURAL MODEL AND STRATEGIES FOR IMPLEMENTATION BASED ON A DESCRIPTIVE AND PRESCRIPTIVE ANALYSIS OF RESOURCES FOR ENVIRONMENTAL EDUCATION/STUDIES

EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

VOLUME V

Final Report
Contract No. 300-700-4028

Work Supported Under the
Environmental Education Act of 1970
P. L. No. 91-516,
P. L. No. 93-278 and P. L. No. 95-482, as amended

Submitted to:

Office of Environmental Education
Department of Health, Education and Welfare
400 Maryland Avenue, S.W.
FOB #6, Room 2025
Washington, D. C. 20202

Submitted by:

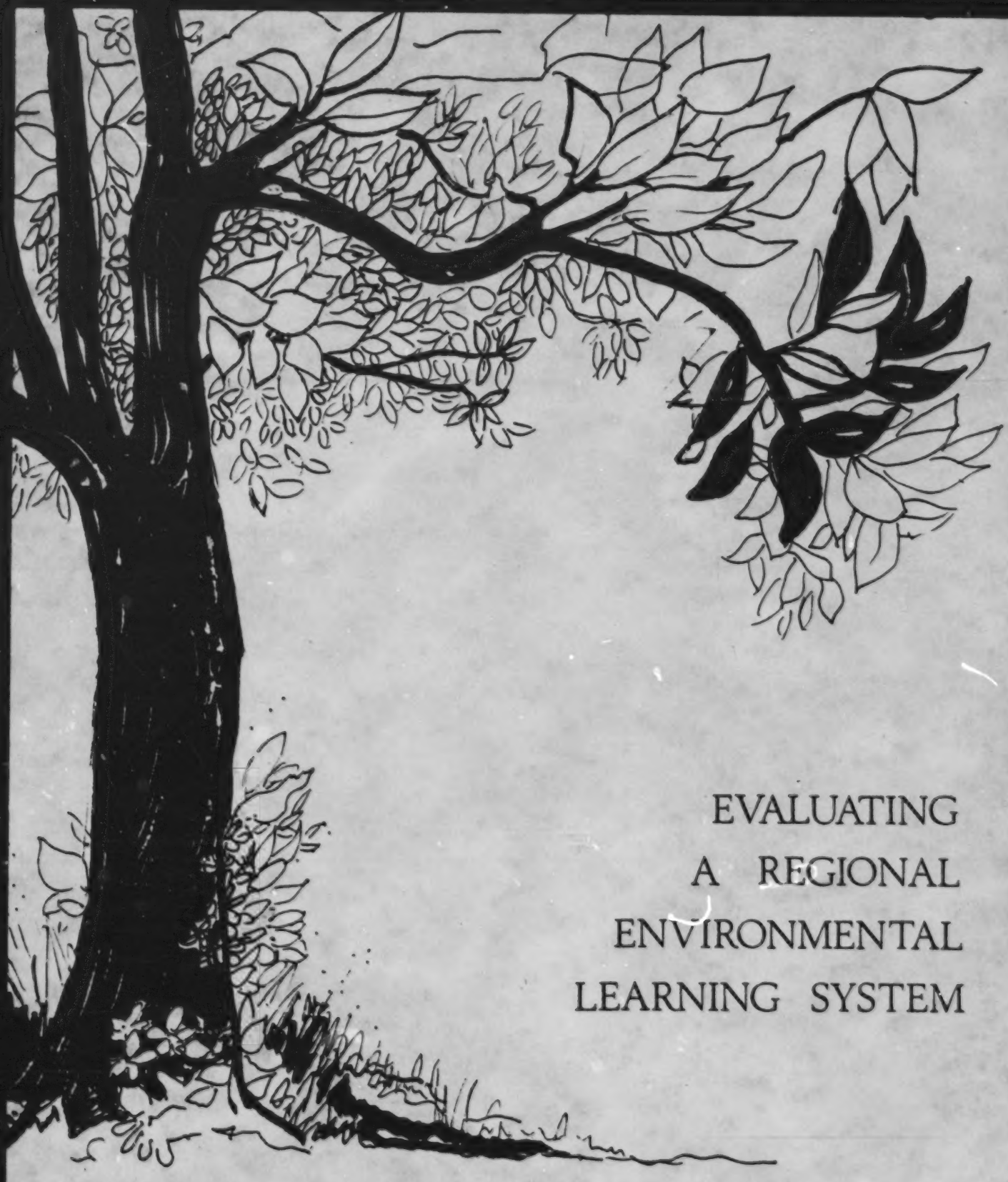
John N. Warfield

Department of Electrical Engineering

RESEARCH LABORATORIES FOR THE ENGINEERING SCIENCES
SCHOOL OF ENGINEERING AND APPLIED SCIENCE
UNIVERSITY OF VIRGINIA
CHARLOTTESVILLE, VIRGINIA

Report No. UVA/522032/EE79/123
August 31, 1979

Copy No. 18



EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

BY ROBERT STAKE. CLAIRE BROWN. GORDON HOKE.
GRAHAM MAXWELL. & JO FRIEDMAN AT THE UNIVERSITY OF ILLINOIS

5

PROGRAM EVALUATION

- Starting to think about evaluating
  - What it means
  - Basic terms
  - Basic designs
  - Politics
- Figuring out this manual
  - Its topical organization
  - Pedagogical rationale

TYPICAL OPPORTUNITIES TO EVALUATE

- Board decision making
  - Observation
  - Interview
  - Document analysis
- Inservice teacher training
  - Attitude scaling
- Study committee bias
  - Value analysis
  - Document analysis
  - Self evaluation
- Student achievement
  - Achievement testing
  - Curriculum analysis
- Community action
  - Ethnography
  - Project history

RELS CASE STUDIES

- LTVEC
- Citizens league

ORGANIZING AN EVALUATION STUDY

- Reference dimensions
- Designs
  - Impact
  - Process
- Negotiating a contract
- A plan of action
- Issues
- Reports

ORGANIZING A RELS EVALUATION UNIT

- What $5000 buys
- Networking

TOPICAL BIBLIOGRAPHY

EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

a Program Evaluation Manual

to accompany
the design of a Regional Environmental Learning System
prepared by
John Warfield of the University of Virginia
and a team of collaborators
under contract to
the U.S. Office of Environmental Education
Contract No. 300-700-4028

This Program Evaluation Manual has been prepared by
Bob Stake, Claire Brown, Gordon Hoke, Graham Maxwell, and Jo Friedman
with assistance during the course of the project
from many people but particularly
Tom Hastings, Chris Buethe, Joan Sextro,
George Araka padavil and Jeri Willen

Center for Instructional Research and Curriculum Evaluation
College of Education
University of Illinois
Urbana, Illinois

August 31, 1979

EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

Table of Contents

Page	
1	Program Evaluation
3	The Meanings of Evaluation
5	The Political Side of RELS Evaluation
8	The Routing of the Reader through this Manual
10	This Manual's Pedagogical Rationale
11	RELS-Like Case Studies
11	Once Upon a River: The Little Tennessee Valley Co-operative
14	The Seven School Districts
18	Beginnings
22	Buck Rogers Land
24	Lost Dreams, Broken Promises
28	Better Years
30	LTVEC: Circa '79
42	Final Thoughts
44	The Citizens League
46	The Workings of a Study Committee
52	Opportunities for Evaluation: Illustrative Applications
53	An Evaluation of the LTVEC Board of Directors
53	A Blue Ribbon Panel
57	Observation
58	Interviews
59	Document Analysis
64	Recommendations
65	Evaluating the Impact of an Inservice Training Project
69	Impact in the Classroom
71	Check Sheets
77	Summary
79	An Evaluation Study of Possible Bias in Committee Work
80	Self Study
81	Value Position Acknowledgement
84	Self-evaluation Portfolios
86	An Adversary Hearing
87	Interviews on Representation
88	Quality Control of Network Information
89	Awareness, Knowledge, and Behavior
91	An Evaluation of Student Achievement
91	Teaching Environmentalism
93	Item Selection

95 Ethnographic Evaluation of a Community-Based Program
97 Naturalistic Evaluation
98 Case Study Research
104 The Project Historian
104 Cautions about Naturalistic Evaluation

105 Organizing an Evaluation Study

106 Basic Ideas of Evaluation of Educational Programs
106 Process vs Impact
107 Preordinate vs Responsive Designing
108 Wholistic vs Analytic Perceptions
108 Formative vs Summative Commitments
109 Formal vs Informal Inquiry
109 Consensus vs Pluralistic Value Sets
109 Case Particular Knowledge vs Generalizations
110 Descriptive vs Judgmental Interpretations

111 A Classification of Program Evaluation Approaches

114 Getting Organized
114 Negotiating a Contract

116 A Plan of Action

119 Substantive Questions

121 Records and Reports

122 Organizing a RELS Evaluation Unit

124 Evaluation Responsibilities
124 Needs Assessment
124 Resource Inventory
124 Goal Review
125 Program Transactions
125 Predicaments

126 The Structure Needed
126 Reasons Against an Evaluation "Unit"
127 Excerpt from Hypothetical RELS Proposal
128 What $5,000 Will Buy

129 Evaluation Networks
131 Resource Persons and Centers
132 Evaluation Technical Assistance

134 Bibliography

135 Evaluation Topics
139 Bibliography

9

A SOURCEBOOK FOR THE DESIGN OF A REGIONAL ENVIRONMENTAL LEARNING SYSTEM

VOLUME 5:

EVALUATING A REGIONAL ENVIRONMENTAL LEARNING SYSTEM
A PROGRAM EVALUATION MANUAL

PREFACE

This is one of six Volumes of a report which, collectively, is intended to be a Sourcebook for the Design of a Regional Environmental Learning System. The report was prepared under Contract 300-700-4028 with the Office of Environmental Education.

This six-volume report presumes some background concerning the concept of a Regional Environmental Learning System, and with environmental education as a whole. Considerable relevant background was supplied in Volume 9 of the 4th Quarterly Report (A Descriptive Analysis of Environmental Education) and in the 5th Quarterly Report (Conceptual Basis for the Design of Regional Environmental Learning Systems), both of which are available from the Office of Environmental Education.

Volume 1 contains an Overview of the Sourcebook, with short summaries of the other Volumes.

PROGRAM EVALUATION

No matter who you are, you can divide evaluation situations into those you "hafta" and those you "wanta." Everything, every program, every activity, gets evaluated informally. In addition to that there are the formal evaluation studies. There are some where "the boss" or "the contract" say you must evaluate. It is not uncommon for the sponsoring agency to say, "Further funding depends on what the evaluation shows." Or for your own Board to say, "You need to demonstrate the impact of this program." Then, one way or another, you "hafta" do an evaluation.

In other situations you recognize that you are not learning enough from the informal evaluating that people are doing. You and the rest of the staff decide that you "wanta" have more complete, more accurate, possibly more credible information.

You set up a formal evaluation study. You probably have high expectations. And you can anticipate disappointments. It is something like getting a housecleaner for the first time. You expect lots of help, and sometimes you get it, but it adds to your own work too (what with social security papers, sharing personal problems, getting "proper" supplies, etc.) and it won't accomplish some of the things you care most about.

As to the methods of carrying out a "hafta" and a "wanta" evaluation study, there is not much difference. But the two approaches feel very different to the people getting evaluated. There is a great deal about program evaluation that has to do with people's feelings. With mandated evaluation you usually feel that you do not have control of things. But even with the voluntary evaluations,

the approach you use, the persons you get to help, the instruments you choose, and the expectations of your audiences combine to persuade you that you do not have much control of things there either.

Let's face up to this business of disappointments right off. Evaluation studies are often disappointing. Of course they are disappointing sometimes because they reveal how much the program is in trouble. But more often they are disappointing because they do not reveal enough about anything. The technology of evaluation is not sufficiently developed so that even a well-run study can be counted on to give an accurate accounting of program impact or a good indication of sources of trouble. A poorly-run study, and most of them are, is likely to provide as much misinformation as good information. There is lots of room for disappointment.

But evaluation studies are often worthwhile. In either the "hafta" or "wanta" situation, evaluation time can be a time to learn. You can come to see problems in a new way. You do get new information. Having done the evaluation, or even having required it, makes one politically less vulnerable. But, at evaluation time especially, chances are good you will establish closer relationships with other people concerned about the longevity and effectiveness of the program.

Whether or not it turns out to be a good experience depends largely on how you choose to go about it. Fancy measurements and analyses are not essential. Wanting to understand more about the program is essential. And selecting an evaluation plan that matches the resources and the interests of people involved is essential. There are lots of alternative designs to choose among (at least according to the textbooks) but there may be only one or two approaches that really fit your particular situation. The fourth chapter of this manual is an overview of current program evaluation methods and some ideas about them that should help program people decide which fits the local situation.

Comprehensive regional environmental learning systems with multi-year funding will need the work of highly skilled evaluation specialists. But of course, RELS staff members and participants do not forfeit all evaluation responsibilities. They will do some evaluating on their own and should help develop and interpret the specialist's work. A manual like this can assist this collaboration.

THE MEANINGS OF EVALUATION

Part of the reason there are a number of evaluation approaches is the fact that evaluation means different things in different times and places. No evaluation study suits everybody, and an evaluation plan that tries is likely to fall short in numerous ways. Against such odds evaluators usually withdraw to their own definitions of evaluation, perhaps ignoring the fact that it is a term having conventional meanings.

To evaluate is to judge. To evaluate is to arrive summarily at a knowing of merit and shortcoming. According to this simple meaning, the criteria and standards are simple, straight-forward, and agreed on. But simple and widely-agreed-upon criteria do not adequately tell the successes and failures of an environmental education program.

With complex, diffuse, and politically sensitive programs the standards for evaluating are just not possible to state. Objectives can be put forth, even ratified by various groups, but it takes only a few minutes of careful scrutiny to see that these objectives do not represent many important hopes, fears, and expectations--the <u>many concerns that people have</u> about the programs.

A danger then is that it will be left to the evaluator to say which criteria should be honored. The standards may by default become those of the evaluator or the evaluator's patrons.

Those standards are not likely to be standards that reflect community valuing of the program--more likely to be those the evaluator is expert at using. Seldom will the two be the same. Something should be done. One alternative is to work harder to tease out the many criteria the people have. And to get those written up. That approach has often been tried, and regularly found wanting. We have so little talent for capturing in formal language our aims and our willingness to accept various outcomes.

Another alternative is to recognize that evaluation can be done without formal statements of objectives, criteria and standards. It can be done by relying on the <u>implicit</u> feelings of merit people have. We can evaluate an environmental education program by confronting people with a number of aspects of the program and recording their judgments. These recordings then constitute the evaluation report.

But will these people make suitable judgments? Will theirs be better than the evaluator's? Who will pick those people out?--Or is it even important that an evaluation study result in a small number of summary judgments?

Barry MacDonald and Ernie House, in separate writings, have indicated ways of making evaluation more democratic, more fair, less authoritarian. Those ways call for recognition of criteria and standards held not just by patrons but throughout the society. They call for a pledge to honor the pluralism of the society, foregoing culmination of the evaluative act--leaving that final judgmental responsibility to readers and users of the evaluation report.

The purpose of a program evaluation study then becomes one of helping people see the program better, arrive at their own decisions as to its faults and accomplishments--to be, in fact, the evaluators themselves.

Instead of integrating program improvement or social reform, and instead even of integrating theory-building and decision making into evaluation, this pluralist view calls for keeping evaluation separate. It calls for recognition of the existing and ordinary processes for management and control, bad as they may be, and for appealing not only to the rational processes of people, but to their institutions and convictions.

According to our way of thinking, the mechanism most suited to this purpose is portrayal. By describing the program, by showing it as perceived by those close at hand--or from special vantage point, by interpreting it according to various frames of reference, the evaluator portrays so that others may evaluate. The evaluator enables audiences to add this vicarious experience, this additional experience, to existing experiences and recollections, to enable them to arrive at their own evaluation, and courses of action.

Portrayal, we believe, is an essential step in making evaluation studies more fair, more democratic, and more useful to the community. But we hasten to add that in emphasizing this point of view and not others we are speaking of our preference, relating to our experience and value commitments. Many other evaluators find this point of view too subjective, too elusive, too difficult to do well. They

prefer to use a predetermined specification of criteria, to invest more heavily in instrument development, and to commit themselves to the most rationally defensible authoritarian point of view. Many choose to incorporate evaluation studies into information systems. We will try to honor these definitions of evaluation, too, in this evaluation manual.

THE POLITICAL SIDE OF RELS EVALUATION

All program evaluation studies have political entanglements, internally and externally. Everyone expects an evaluation of the Vietnam War to be tangled in politics. David Halberstam's book, The Best and the Brightest, confirmed it eloquently. Many do not expect the evaluation of a high school workshop on energy problems to be political. But an evaluator has to work hard to ignore the strainings of liberal and conservative advocates. And probably should not.

Ernest House summarized the political involvements of a number of educational programs in a book entitled, The Politics of Educational Innovation. David Cohen and Gideon Sjoberg, as well, have valuable writings on this subject.

One might conclude that only those things politically sensitive will get evaluated formally. Surely, if they are politically sensitive, that will affect the nature of the evaluation study.

The school and community work of a RELS will be caught up in political issues. The originators of RELS and their later administrators will face political obstacles and use political processes to remain vital. Their evaluations too will be at least as political as scientific. Political constraints may limit some of the evaluator's work, but they also serve to remind us of what is relevant. Political demands can influence studies in a number of ways: the publicity given to the planning, the access to sites, the reasons given informants for doing the study, the wording of questions, the confidentiality of data storage, the value-positions considered in interpreting the data, the mode of dissemination of results and so on.

In Chapter 4 we will arbitrarily divide all evaluation designs into that emphasize program processes and those that emphasize program impact. Experience tells us that usually the program sponsors, the bureaucrats, and the tax-payers want to know about program impact. More often, program staff and participants want to know about program management and operations. Not always, of course.

The curiosities of someone mandating ("Naturally, we expect you to evaluate what you are doing.") usually go directly to the question of whether or not the program is having a good impact. The following letter might be considered a classic. It is a paraphrased version of one actually written by a regional program official, urging that the evaluation plan be written to focus on accomplishments rather than on inner workings.

Dear Evaluation Specialist:

Thank you for sending a draft of your evaluation proposal. Each of your issue questions merits the attention of evaluators. Two procedural changes would make the evaluation proposal easier for me to accept.

First of all, you should identify what or whom is to be evaluated. Is it the contractors, the volunteers, the contract management, the present training policy, etc.? I am in doubt as to how many separate evaluation instruments will be developed. I strongly recommend that there be a standardized evaluation instrument to measure the contractor's performance in all of the projects. It is my understanding that each of the contractors is to develop his own performance criteria. It would be helpful to know the comparability among these criteria.

The second suggestion is that the evaluation begin with a complete statement of goals which we will want to measure. A brief exercise in which we tried to restate your issue questions proved to us that they are too ambiguous to determine the specific benefit to be evaluated.

Since these evaluation data are to guide future decisions about training requirements for our program, I believe we will have to gather data on the impact of our field personnel. An evaluation of how efficiently the contracts are being administered is not enough. The probability of getting Congress to accept program outcomes cast into tangible, quantifiable dollar values is better than a defense of the program in terms of social ideas and anecdotal evidence of good works. Some statistical connection among implementation, the program's presence in a community, and measurable events in people's lives is required.

Sincerely,

Associate Director, Region II

16

In Chapter 4 we will examine the reasons why this distant program official almost surely continued to be disappointed with the further planning and later results of the evaluation work on that program. The point we make here is that the political nature of environmental education programs will have an influence on what the evaluation studies attend to. It will influence many choices the evaluators will make.

These political dimensions were reflected in the concept of a Regional Learning System around which our own work in environmental education centered in 1978-79. We heard proponents describing RELS as a "new social form" characterized by the following conditions:

(1) Participants in the RELS see environmental issues as having major impact on their region.

(2) They believe that new approaches to learning and management are essential.

(3) Creative forms of organization--e.g., networking, temporary systems, cooperatives, charettes, etc.--are needed.

Two illustrations found in this Manual are RELS-like organizations: an environmental education project in Tennessee and the Citizens League of Minneapolis-St. Paul. The central importance of learning and social interaction is featured in case studies in the next chapter.

There is danger that the sheer demands of organizing and maintaining a RELS in an atmosphere of tension and potential conflict are underestimated in the current literature, and perhaps here. For example, there are numerous signs that citizens rarely think or act in response to "regions;" and the role of politics as an arena for brokering conflicts between opposing sets of values, so amply illustrated in the energy/enviornment dilemma, should be acknowledged. A description of a European scene is applicable here too:

> Regional policy has been described as being largely an exercise in co-ordinaton; it is a complex effort requiring co-ordination of many. . .policies and at various levels of government. . . .It should be stressed that in spite of all the efforts make. . ., in some cases stretching back for two or more decades, . . .regional problems are as acute as they have ever been and current measures appear to be insufficient to prevent a continuance of such problems.

The weight of intellectual tasks inherent in attempts to understand the complexity and scale of environmental problems also should be appreciated. Relationships between demographic shifts and erstwhile changes in policies concerning treatment of the environment at all levels of governance are both profound and subtle. Their presence may be masked by other economic, political and general cultural trends. The contemporary population shift to the Sun Belt, leaving decline in its wake, and creating problems of growth for receiving states and communities, is linked to our aging population, to a search for milder climates, to retirement policies, and to a host of other less obvious factors.

It is important to realize (and probably to tolerate) the fact that political people call for evaluations partly because it is politically expedient to do so. Directors appear more responsible if they require formal evaluation studies. Commissioners ward off criticism and buy time by pointing out that an evaluation study is underway. We would not deny that most calls for evaluations are rooted in a real concern for the welfare of the people involved--but a self-preservation motive is usually present too.

Largely for this reason millions of dollars are being spent on federally-mandated evaluation studies, many calling for answers to questions that we have not yet learned how to answer. The wisest step might be to call a moratorium on mandated evaluation studies until we found out how to do them better, but that will not happen.

In the meantime, some evaluation demands should be resisted or ignored. But usually the best response will be to do the evaluation--finding a compromise design that tries to satisfy the mandate while providing an inquiry experience and some information useful to people most directly involved and perhaps to the local community.

THE ROUTING OF THE READER THROUGH THIS MANUAL

In a couple of pages this RELS Evaluation Manual will plunge into the two case studies: one of an Environmental Education Project in southeastern Tennessee, and after that a second case study (of the Citizens League in Minneapolis-St. Paul). The authors will raise questions and make suggestions as to modest evaluation studies that might be done to deal with typical concerns in projects like these.

Steps needed to carry out evaluation work will be the focus of Chapter 3. In Chapter 4 will be a plan for a formal evaluation unit in a RELS. From there on attention will be given to major concepts and terms commonly used in evaluation work and which should help persons undertaking their first formal evaluation study--to delimit their work and to search out technical help of one kind or another.

This manual is not a cookbook for novice evaluators. It is a book for novice evaluators (and for experienced evaluators) and others facing new responsibilities in studying an environmental education program. It is not a cookbook because it does not lay out the recipes for a study of student gains in achievement or for doing a case study. What it does is to set up parallels between the context of the reader's program and other contexts (particularly one in Tennessee and one in Minneapolis-St. Paul) and to follow the routing of thought that more experienced evaluation specialists go through: making this decision, getting that authorization; getting into these discussions; and so on.

For more technical matters, the reader is directed toward other writings. Identification of help awareness is a major goal for this brief manual. For example, many introductory steps for evaluation studies can be found in the manuals (listed below) prepared at UCLA's Center for the Study of Evaluation.

(1) Evaluators Handbook
(2) How to Deal with Goals and Objectives
(3) How to Design a Program Evaluation
(4) How to Measure Program Implementation
(5) How to Measure Attitudes
(6) How to Measure Achievement
(7) How to Calculate Statistics
(8) How to Present an Evaluation Report

These manuals are available from Sage Publications Inc., 275 South Beverly Drive, Beverly Hill, California 90212.

It is apparent that most readers will not read all of our manual seqentially, nor even enter through chapter one. We think it most useful to read from front to back, for reasons to be explained in a moment, but we have tried to write it so that readers can route themselves to information most directly useful. For this reason we have labored over the section headings and have prepared the graphic table inside the front and back covers.

THIS MANUAL'S PEDAGOGICAL RATIONALE

We have chosen to organize our Manual the way we did partly to emphasize the importance of the local context, the importance of organizing the evaluation study in terms of what is happening in the local situations. Most evaluation studies reduce the complex phenomena found here and there to relationships among a few input and output variables. Their purpose is largely to combine findings with those of other sites so the results might be generalized and considered a general basis for planning.

We find that kind of generalization not sufficiently important to justify the loss of attention it requires to particular conditions and complex interations in the reader's own program. We are using our two case studies to keep those particularistic matters as foreground for thinking about how to evaluate any real-life RELS.

The reader facing a large evaluation responsibility may be sinking to the bottom of dismay (a very bottom-line, so to speak) with the chances of rescue seeming remote. Those of us writing this Manual have no prescription for miracles, and no optimism that new skills of evaluation can be learned quickly.

But old skills may do quite a respectable job. The best an evaluator usually can do is what he or she has been doing already. In this case, it may be taking a careful look, lots of careful looks aided by a number of people, at the problems and concerns of the program. A careful account of these can add something valuable to the understanding of the program, particularly if it helps readers take a long, deliberate look at the way the project is dealing with environmental issues in this community.

It seems worth repeating. Whether or not it turns out to be a good experience depends largely on how you choose to go about it. Fancy measurements and analyses are not essential. Wanting to understand more about the program is essential. And selecting an evaluation plan that matches the resources and the interests of people involved is essential. There are lots of alternative designs to choose among, but there may be only one or two approaches that really fit. The routing of this Manual is to help the reader tease out what questions and listenings may best make it fit.

Evaluation takes form and meaning only as it interfaces with human activity. Two case studies of environmental education programs are provided in the following pages. These studies are here to serve as a vital context for later discussions of evaluation theory and practice.

ONCE UPON A RIVER: A CASE STUDY OF THE LITTLE TENNESSEE VALLEY COOPERATIVE

Wish that I was on Ole Rocky Top
Down in the Tennessee Hills

Ain't no smoggy smoke on Rocky Top
Ain't no telephone bills

Rocky Top, you'll always be
Home sweet home to me

Good Ole Rocky Top
Rocky Top, Tennessee

Excerpt from Rocky Top.
"State song" of Tennessee.

Dee's Cafe, Loudon City

Nanny, you ready to pay or you just gettin' a paper?

Nanny opens her handbag. Ain't nothing in here. How much is it?

A dollar.

Nanny pays in change.

Nanny, you been to a doctor?

No, doctors can't do nothin' for me.

Sometimes. Could give you something for that cold.

That's what's got me messed up now. Takin' too much medicine. Give me one of them plastic bags. Ain't no use wastin' this good piece of meat.

You need somethin' that will knock it out of you. I'll take you, if you'll go. Which doctor do you go to?

I'll go to most any of them. Have I paid you?

Yeah, you done paid us, Nanny. If you decide you want to go to the doctor. . .

Coming to know the Little Tennessee Valley Cooperative is more than an intellectual probe of an educational program. It's a knowing of context that seeps through your pores, beginning from the moment the Delta 727 settles down at the airport, halfway between Knoxville and Maryville (pronounced Murvul), and a southern drawl beside you says, "Yeah, feels like we're back on good ole Tennessee dirt."

I'm not sure what hearing Rocky Top blasting from jukeboxes and pick-'em-up trucks, hoping Nanny gets to a doctor, watching the deer graze in Cade's Cove or redbirds play about in the brush beside the Little Tennessee have to do with LTVEC; but somehow, for this observer, they all became one. These experiences were much a part of a growing attunement to the woven consistency of people, land, and rivers; where change is so slow as to be almost imperceptable; where the passing of springtime is charted in morning hoar frosts on the mountains, and the coming of dogwood winter; and where environmental education is sometimes teaching kids how to clean fish.

THE SEVEN SCHOOL DISTRICTS

The Little Tennessee Valley Educational Cooperative has, from the start, been made up of seven participating school districts--the three county districts of the Little Tennessee Valley--Loudon, Blount, and Monroe--as well as four city systems within those counties--Lenoir City, Sweetwater, Maryville, and Alcoa. Altogether, there are approximately 29,000 public school children in the seven-county area and within the LTVEC region. By regions, the size of the districts, according to student population, varies as follows:

Blount County	11,000
Monroe County	4,000
Loudon County	3,000
Maryville City	2,500
Lenoir City	2,500
Alcoa City	1,300
Sweetwater City	1,300

There are several distinctions between the county and the city systems. The three county systems are larger, more rural and administrated by elected superintendents, whereas the smaller city systems are administered by superintendents appointed by their school boards.

In addition, each district has a distinct personality with significant geographic, economic, and cultural distinctions. The scope of this study did not include in-depth inquiry into each school district. As observations were being conducted through the districts, however, a few quotations and vignettes which tell something of the character of the districts were saved, and are simply shared below in the form in which they came to the observer:

Blount County

Blount is one of the oldest counties in Tennessee, having been developed and given official status by the Tennessee Territorial Legislature on July 11, 1795. The territory forming the new county had originally been part of Knox County. A county court for the new county was organized in September, 1795.

Blount County was named for William Blount, Governor of the Southwest Territory. Maryville, the county seat, was named in honor of Governor Blount's wife, Mary Grainger Blount.

The settlement of the Blount County area got underway in a substantial way around 1785, when there was a heavy immigration from North Carolina and Virginia. There were some scattered settlers prior to 1785. Apparently, the earliest white settlers had much trouble with Indian raiders.

"Blount County is wealthy, but has a low tax rate. Its financial base is Alcoa Aluminum and Knoxville. It has a very low property tax. People who commute to Knoxville don't care about the political scene in Blount County. Landed farmers have the political power. But they are extremely conservative and don't want to pay taxes. People in Blount County who are well-educated are demanding better services, but the county can't afford them. Blount County is eighth or ninth in wealth in the state and eighteenth in taxes collected."

"Local governments aren't going to raise taxes for facilities."

"Consolidation is one of our big issues."

Loudon County

Loudon County became a legal entity on May 21, 1870, and Christiana County. The name was changed a few days later to Loudon County. The county, formed from parts of Blount, Monroe, and Roane Counties, was named in commenoration of Fort Loudon, Colonial British fort near where the Tellico River flows into the Little Tennessee River near Niles Ferry Bridge on Highway 411. The fort itself was named for the Earl of Loudon, Commander-in-Chief of the British Forces in America and also Governor of Virginia. The fort was erected in 1756; it is supposed to have been the first structure of its kind created in Tennessee by Anglo-Americans. The fort was destroyed by the Cherokee Indians in 1760.

The first church in the county was built by the Rev. Isaac Anderson, a teacher of Sam Houston and founder of Maryville College. The date was 1823.

"In our district there were problems around the mid '70s--the handicapped law and trying to comply. . . . Now its not our major problem. In fact, I can't think of any major problem now.

Monroe County

Monroe County became a legal entity in 1819, having been developed from lands obtained by the Hiwassee Purchase made by the Federal Government from the Cherokee Indians. The county was named for the fifth President of the United States, James Monroe (1817-1825), a native of Virginia. The present county seat was named for President James Madison, the fourth President (1809-1817), also a native of Virginia. The site for Madisonville was probably selected in 1822, but the town was not plotted until 1827. Apparently the first and second county courts were held at Morganton (now in Loudon County) and at Henderson, east of Madisonville. The territory, now in Monroe County, contains the territory occupied by the Cherokee Indian towns of Chota, Tellico, Citico, and Toqua. The earliest permanent settlers came largely from Virginia, South Carolina and North Carolina.

"We're basically slow to change. The longer I live, the more I see merit to this."

"Of the seven Co-op districts, Monroe County has the lowest per capita income. The tax base is strickly property. It's an agricultural-based county. Our biggest challenge is getting people to accept responsibility of where they are educationwise. Many of our children have not had the cultural advantages of things in the home, etc."

"Our people are a mixture of Appalachian mountain people, and small town people. The mountain people are slow to accept, defensive, and hold back. They are slow for change and very cautious."

Lenoir City

"Most people work in Lenoir City in Oakridge, Knoxville, or for TVA. This is the place where they sleep at night. Twenty-five percent of the kids' parents are federally connected. I feel we are in the process of change--industrial development in the city and county, a change process, so that the biggest concern now is providing for

living in this area. There is an increase of kids in the schools. If Expo '80 comes to Knoxville, and if the Tellico Project ever gets out of the county and gets development going . . . But we had better do some planning. We could not accomodate it."

"We feel we never did leave the basics to go back to. We never did go to the new math. We're still somewhat traditional, and if that is not good, I guess we feel it is tried and proved."

ALCOA

"We have a significant number of black kids--twenty-eight to thirty percent. We have the best tax base in the state--from all the plants of the Aluminum Company of America (ALCOA) that are here."

"We've got all we need: we're the richest school system in the state."

"Population is a problem--declining enrollment. Alcoa retirees are buying up the houses. It's difficult to maintain quality."

Sweetwater.

"There was a settler who came out and built a house on the hill above the spring. In this house, the man had a large molasses barrel. This was originally the home of the Cherokee Indians. One day some Cherokees came down through the Cherokee forest, got drunk, and they went up and set the man's house on fire. The molasses barrel tumbeled into the creek, and the Cherokees named the spot 'Spring of Sweet Water.' "

"The people here are of Scotch-Irish descent--hardworking, energetic, outgoing, have done a lot of things for themselves."

"Basics are our main concern, meeting standards. We are a traditional school, textbook-oriented. We're trying to eliminate things from the outside that might distract from the basics."

BEGINNINGS

The history of the Little Tennessee Valley Cooperative is not a single story, but several, each a view from a different window. Joe Sherlan, superintendent of Sweetwater City Schools, was there and remembers the beginnings this way:

> TVA, in planning for Tellico, decided they needed grassroot support. And if Tellico came to fruition they would need educational support. . . . They would have to cross county lines because the project was across three counties. So out of this came the Charrette, . . .and then the Cooperative (LTVEC).

A report by a study group from the University of Tennessee describing the activities of the Little Tennessee Valley Charette also described the Cooperative's beginnings:

> For about four years the Tellico Area Planning Council has been developing plans for the proposed "Timberlake" community to encompass parts of three counties, Blount, Loudon, and Monroe. As one aspect of this process, the seven superintendents in the area formed a committee to consider the educational dimensions of the projected community. During their discussions it became apparent that it was inadequate to consider educational planning just for the Timberlake community. It was decided that educational planning should include the entire three county area.
>
> A group representing the seven public school systems and the local governments in the Blount, Loudon, and Monroe tri-county area, therefore, instigated the development of a series of meetings designed to gain widespread community involvement in education. The "charrette" technique was selected in order to facilitate multi-group involvement in the geographical area and to provide a means for studying and resolving educational problems within the context of total community needs.
>
> * * * * *
>
> It is proposed that the school systems involved in the Little Tennessee Valley Charrette form a confederation of local school districts to be called the "Little Tennessee Valley Educational Cooperative."

It is further proposed that this educational cooperative be formed under the General Act of the General Assembly of the State of Tennessee known as the "Educational Cooperation Act," Public Chapter No. 511. This act permits "Boards of Education the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and to thereby provide educational services and facilities in a manner that will accord best with geographic, economic, population, and other factors influencing the needs and the development of local educational facilities and services."

As part of its planning toward the Tellico Dam Project, to be implemented in the Little Tennessee River Valley, TVA stimulated the concurrent planning of the model city, Timberlake. To parallel these activities, TVA was further instrumental in the organization of the Tellico Area Planning Council and the eventual organization of the Little Tennessee Valley Educational Cooperative. The organization of the Co-op was unboubtedly seen as an advantage by TVA. Support of the project and cooperative planning among local school people for the future of Timberlake could be a foothold in gaining more general support of local people for the Tellico Project. Thus LTVEC was created, in one sense, a forced marriage among geographically linked but historically independent school districts. Why would TVA work through the educational systems in gaining political support? Because in the Little Tennessee Valley, schools were not only central to community life and community interest; but also significant in community political activity. Or, as one person interviewed put it:

> Education in the South is like motherhood and apple pie. It's looked upon as being sacred . . . They can wave the flag more for education than for anything.

For the local districts, the Cooperative was certainly not a pro-active, spontaneous coalition of seven school districts committed to cooperative educational activities. LTVEC was instead a local shared reaction, probably more political and economic than educational, in response to the external press of a special environmental circumstance; i.e., Timberlake. These earliest participants in the Charrette recognized the wisdom of unity in the face of the coming of Timberlake, an intruder at once dazzling and ominous.

Stakes were high. The location of control of the educational system of Timberlake would be a critical problem ot the community itself and to surrounding counties.

> It is imperative that the three counties cooperate regarding the Timberlake project. Should the project be developed as proposed, Loudon County Schools would be swamped with students, but would have an insufficient tax base to cope with the problem. Blount County would have the same problem, although with less severity. Monroe County would contain the majority of the industry and the resulting high tax base. An attempt to operate the school systems under their present conditions would create educational chaos. How ever, Monroe County should not be expected to share revenue unless the system receives adequate services. The need for an equitable sharing of services and revenue is obvious. The following alternatives are offered: . . . (From a University of Tennessee report of the Little Tenessee Valley Charrette)

Additionally, the financial burden and/or benefits to be felt from the development of the model city were of great concern and importance to the seven school districts.

Stated purposes and intended activities for the Co-operative at its start-up reflect an extension of conflicting interests. Interests of local school districts and those of outside interests were widely divergent. Those with vested interests in the Tellico Project conceived the Co-op as functioning privately within the purposes of planning and development of the Timberlake educational system.

> This Utopian idea goes back to the late 1960s when the Tennessee Valley Authority heeded residents' pleas to build a dam on the Little Tennessee River at Lenoir City and otherwise help the sagging economy of the three counties.
>
> TVA didn't just want to build a dam for the sake of building a dam. It also conceived Timberlake, named for the British explorer who came to these parts in the 1700s. The water-oriented community projected for 50,000 residents would be built to spare citizens from pollution and eyesores from the beginning.
>
> New industry brought in would be located elsewhere. This calls for new vehicle arteries, including new bridges over the Little T (one already has been built), and a school system to take care of today's and tomorrow's children.

So the Little Tennessee Valley Educational Co-op (LTVEC) was born, supported by joint grants from TVA and the Appalachian Regional Commission. (From News Sentinel, date unknown.)

Certainly, those within the local districts had the needs of their own existing schools, school populations, and programs in mind. The Charrette collected data across the three counties to determine within-county and across-county needs to which LTVEC might direct its efforts.

> Such a diversity of programs, to be initiated within seven school districts, undoubtedly will require some careful planning and organizing to provide maximum use of the existing facilities, funding, and involvement of resources outside of formal education. Throughout the Charrette a strong desire for cooperation in attempting to solve the educational problems of the Little Tennessee Valley was evident among the citizens, students, and educators alike. An organizational refinement is recommended which might be desirable to improve the cooperative involvement of the seven school systems. (From University of Tennessee Charrette Report.)

It is interesting to note, also, that in the Charrette study the individual counties each reported somewhat different, specialized, and considerably focused needs, which they hoped the co-op might help meet: Blount County, reorganization of high schools, vocational training and sources of funding; Monroe County, new facilities and vocational training; Loudon County, better facility utilization, new educational programs, new sources of funding.

Still, the formal report of the Charrette study was concluded with a broad and inclusive statement of purpose for LTVEC which would parallel that of a typical educational cooperative:

> The primary purpose of the Cooperative should be to provide specialized educational services on a regional basis so that a high degree of equality in educational opportunity can be achieved and advanced educational practices can be introduced and sustained. The Cooperative should perform those specialized services which school systems are not able to perform efficiently themselves or

those which could be performed through a pooling of human and material resources. (From University of Tennessee Charrette Report.)

Some of the functions that should be included in the Cooperative would be planning, research, development, evaluation, and services through commonly operated programs of inservice education, vocational education, special education, supplementary media and materials, early childhood education, driver education, educational television, shared teachers and consultants, the use of technological innovations for delivery of programs, and so on. The Tennessee State Department of Education and colleges and universities should participate with the local school systems in responsible roles in the planning and execution of these functions. (From University of Tennessee Charrette Report.)

BUCK ROGERS LAND

> Dr. Oakes called it Buck Rogers Land. It was such an ideal situation: It was real exciting, you know. First of all, there would be a completed educational center for all-aged people . . . library, swimming pool, golf course . . . idealistic . . . classrooms for all nature of the handicapped . . . a complete educational park for the three counties. (Quote from Glyden Calhoun, Co-op Bookkeeper, 1971 to present.)

At the recommendation of the Charrette, a ten-member Cooperative Board was formed for LTVEC, with one member elected from each of the seven local school boards (Monroe County, Loudon County, Blount County, Sweetwater City, Lenoir City, Alcoa, and Maryville) and one member from each of the three county courts within the Cooperative. In August of 1971, this Board appointed Dr. William Oakes as the LTVEC Executive Director, and the Cooperative began its operations within one year grants from TVA and ARC (Appalachian Regional Commission). Much of the story of the first year or so of operations of LTVEC is related to the character and activities of its new director:

> "Bill was a highly verbal person who had wide contacts and went all directions at once. He was

an idea man . . . He was a pretty good financial person, fairly well able to hold the Co-op together through personal influence."

"He was local, from Knoxville . . .friendly, a wheeler-dealer. He traveled to Washington a lot, and made speeches."

"He was brilliant, committed, but controversial; he wanted to expedite things, didn't always explain . . . had difficulty explaining, like the budget."

"Bill did not see himself as facilitating local interactions, but interacting with the Department of Labor, the press, TVA, and so on.

This first year of the Co-op's operation was intended and funded as a planning and development period. Spirits were high, ideas inspired if at times grandiose, and news releases flowed. Most of the planning at this time was related not to planning of cooperative programs for the seven existing LTVEC school districts, but to the planning and development of the proposed Human Resources Center to be located at Timberlake, still a dream city.

> MADISONVILLE, TN.--There's a sitting-on-the-edge-of-the-chair excitement among educators, public officials, civic leaders and school patrons of this region as they speak of a significant new concept which is being put into operation to meet the educational needs of a three-county area.
>
> A Human Resource Park, opening in 1975, with structures to house a high school, a middle school, and vocational-technical facilities, will involve an initial investment of some $5.2 million for construction on a 300-acre site northwest of here.
>
> The facilities, to serve the residents of Monroe, Blount and Loudon counties, would provide educational training opportunities for all ages.
>
> The program envisions a steady expansion, with additional facilities being constructed over a period of some 25 years, with the total investment

in buildings, equipment and grounds reaching $32.8 million by some time in the 1990s.

The Human Resource Park could--but would not necessarily--take the place of present high schools operated by the seven school system (some of them municipal) in the three counties. (By Mouzon Peters, Times Tristate Editor.)

Basic educational needs of tri-counties are already apparent, and some possible solutions can be seen. Among these is a perimeter comprehensive high school which could be part of a Human Resource Center (HRC) which would be somewhere near the junction of the thoee counties, and it is possible that industry and government could become interested and that HRC would develop as a tri-county cultural center. It could include an Area Technical-Vocational School, an Environmental Educational and Research Center as well as many other facilities and services to serve the young and not-so-young. (Charrette Forum Release, 2/71.)

The Little Tennessee Valley Educational Cooperative (Charrette) is continually searching for alternative means to solve some of the educational and human needs in the area. Of much more modest scope were program efforts, with a few meagre starts especially in vocational training, adult education, and driver education.

Later, in retrospect, Bill Oakes summed up the Co-operative's first year:

> "A few programs were started with federal funds, but most of the year was spent pursuing the golden fleece of the future. In September, 1972, the fleece began to tarnish and flee further into the future."

LOST DREAMS, BROKEN PROMISES

At this point, the identify of LTVEC still rested heavily upon continuing successful development of Timberlake which, in turn, depended on the successful completion of the Tellico Dam (though a few were saying that Timberlake was a good idea with or without the new reservoir). Boeing Corporation had been contracted to spearhead the planning of the residential and industrial components of the model city, and paralleling the Co-op's first year of operation, Boeing had correspondingly invested $250,000 in their

part of the overall Timberlake effort. Meanwhile, public sentiment and other antagonistic forces were gaining support in their fight against the construction of the Tellico Dam. TVA, therefore, had become extremely reluctant to follow through with its early promises of support, especially economic support to the Timberlake project or to the Co-operative.

Boeing finally withdrew entirely, leaving the Timberlake Project essentially without direction and support, and leaving LTVEC in a seemingly helpless situation, as well; essentially without support, identity, and--most important--without a dream or a cause. The situation is summarized in the following LTVEC Board Meeting Notes:

> Evaluations of LTVEC and TVA--It was pointed out to the board that there seems a distinct possibility that Timberlake will not develop at the previously envisioned rate, and it may be 1980 before significant numbers of Timberlake residents are on hand. Since the needs of the tri-county area have existed for some time, it is obvious a delay of another eight years or so would not be appropriate. The Board then discussed the possibility of returning to the original recommendations of the Charrette and exploring the possibilities of a perimeter high school, a Special Education facility, and a state area voc-tech school.

As these minutes reflect, LTVEC realized its only option for survival was to recoup forces, focus inwardly, and find within its own ranks of seven school districts the individual and cooperative needs which would provide their mutual commitment with a real purpose and an action agenda.

Paradoxically, perhaps, the withdrawal of external support from TVA and Boeing provided Co-op membership with the start of a new identity, of a sort, or perhaps the return to an old identity that was there all along, before Timberlake and all the rest, not formalized as the Little Tennessee Valley Cooperative, but there as a loosely-coupled network of local people with local concerns, who stood sometimes apart and sometimes together for things which they cared about--like their children, their families, their property, their independence, their simpler life style, their right to being slow to commit but long in committment. When the odds were against them, the rugged individualism for which their southern and mountain ancestors have so long been known stood the Co-op well in turning the corner in their affair with TVA. Or as one Board member has said:

> "Then the thrust went inward. It was Oakes. Plus the fact that there's a stubbornness in the Tennessee personality that says, 'By Goerge, we're gonna make it work whether it's with TVA or not.' "

This transition was not to be an easy one, however, and found the cooperative entering into a long and painful struggle toward redirection, autonomy and self-sufficiency. As the last of the TVA and ARC grant monies were coming available, a new ARC grant in the amount of $65,000 was negotiated. The new grant was months in gaining the go-ahead from ARC central offices, leaving LTVEC in increasingly extenuating financial circumstances. Board notes of November 15, 1972, reflect the worsening situation:

> There apparently comes a time in the life of each cooperative when the lag between expenditures and receipt of a federal check forces the cooperative movement in most states, unless they are directly supported by the state Department of Education. Our present cash balance is zero. The first payment on our TVA contract will come after the first of the month, and we still have $3,900.00 coming from last year's ARC contract. In the meantime we need a bank loan.

Rapidly depleting funds and high overhead costs led the co-op in the spring of 1973 to move from its location in Greenback to empty space in ALCOA School District. When the ARC grant monies finally came available, the total amount was reduced substantially from the original budget, due to an agency policy which disallowed retroactive reimbursements. Salary checks were delayed for weeks, the Co-op found itself burdened with a debt it had no resources to repay and morale hit a new low. Glynden Calhoun described the final page of this rather dismal chapter in the life of the Co-op as follows:

> In '73, when we moved up to ALCOA, there was not much more activity. We couldn't keep going on promises. We had to have money. . . . So long as Timberlake was being planned, there was enthusiasm. There was TVA with all their money. And Boeing. And ARC . . . [But there were] growing pains. You can't sit still. I've heard Dr. Oaks say, "You have to grow or give up."

For more than a year, the Co-op was engaged in an active struggle for survival, an almost day-to-day battle to create a new identify, to set new and realistic goals, and to

become financially solvent. As a strong resentment developed against the fickleness of outside forces and agencies; a considerable moral investment was made by Bill Oakes and Board members in somehow finding ways to become self-sufficient.

During this period, Board membership, previously including only school board and county court members, was enlarged to include superintendents from the seven school districts. This change modified the governanace and undoubtedly the vision of the Board from one of more general political interests (and perhaps somewhat limited committment) to greater investment in school-related issues.

The Co-op had maintained a poor record, to this date, in development of effective new programs. It had placed minimal investment of resources into a smorgasbord of programs for the district, none of which seemed particularly vital or of high priority to anyone.

Bill Oakes realized that the Co-op needed a new central and motivating theme which could somehow generate both enthusiasm and funds for Co-op operations. A first opportunity of this sort occurred with the Co-op's attempts to develop a viable vocational educational program. Voc Ed seemed a likely lifeboat; two years before, the Charrette had listed it as a top priority need across all three counties. Even more important now, the state was currently making plans for support of planning and development of new vocational education centers across the state. The hope was that LTVEC might assume administrative responsibility for a cooperative Voc Ed program effort among the seven school districts. The outcome of state Voc Tech plans, however, was that the state finally provided the physical structures but not monetary support for program development, so, in the end, the various districts developed their own Voc Tech programs without LTVEC.

Concurrently, the emergence of an all-important program, psychological services, had later begun to emerge as a program to hold a central place over several years in the purpose, vitality, and services of LTVEC. Paradoxically, it seems, the full potential of the program was not at first clearly perceived, as can be seen in the following rather perfunctory summary appearing in "Cooperatively Speaking," an LTVEC newsletter:

> LTVEC's last bucket of money from the federal well has been approved, and, with this, programs for the school year 1973-74 have been planned

and submitted to the respective Boards of Education. A serious problem for years has been the lack of being able to test students to determine the programs they need. Such a program is called psychological services, and LTVEC has proposed to provide the service.

A school psychologist has been found, and, with interns from UT and help from the State Department of Education, screening of students is proposed to begin in September, 1873.

BETTER YEARS

With 1973 dawned the beginning of a new era for the Co-op. That year, Tennessee Public Law 839 came into effect along with additional state funding to hasten compliance. The law established as state policy to require school districts to provide special education services sufficient to meet the needs and maximize the capabilities of handicapped children.

This new mandate loomed large and threatening for most school districts. First, the state did not interpret the law, nor did it prescribe the logistics of how compliance might occur. Secondly, the educational implications of the law ran contrary to the existing fabric of schooling being practiced by many districts. As one observer put it, "The law was antithetical to the educational system in the state--a bureaucracy in which educators run the show."

The seven LTVEC districts were sufficiently alarmed about the prospects of the new legislation for educating the handicapped to agree to the cooperative pooling of resources in order that the Co-op might develop a full-scale psychological service programs, complete with an added staff person to see to its success. Subsequently, this person, Dr. Jerry Morton, was hired. He immediately embarked upon a mission to successfully utilize the Handicapped Education Law, with its encumbrances and benefits, as a vehicle for pulling the Cooperative together, strengthening programs, enlarging staff, balancing the budget, and shaping a new dream for the Co-op, a dream which was to include words like "individualized instruction," "advocacy for children," "development of human resources," and "educational revolution."

The new Psychological Services program included two major thrusts. First, a cadre of University of Tennessee graduate students in psychology were hired on a part-time basis to go about doing outreach work in testing and placement for the school districts. This group not only achieved delivery of services to schools but they also quadrupled the Co-op staff and generally infiltrated the ranks with youthful idealism and priorities which placed concern for handicapped children above concerns for agency, districts, power, politics, and economics.

In the second thrust of the new psychological services program, Jerry Morton began to work personally with the Co-op districts in arriving at viable interpretation of Law 839, in providing badly-needed legal assistance and consultation to the districts themselves.

The perceived utility to districts of the Psychological Services Program over the past six years is readily documented across the several districts:

> Monroe County:
> About six years ago we began our program of individualized instruction. We're about halfway there; the Handicapped Program has helped a lot. Our whole intent is not for the accelerated but for the lagging child. We have been guilty of teaching to the mass. Public Law 839 really puts focus on the lagging child.

> Blount County:
> It [assistance from the Co-op] was very necessary at the beginning. We wouldn't have been able to do the things we have done without Psych Services. It [839] hit us, and we didn't have the people. It was necessary that we have supervision . . . interpretation of the law was a big thing with us on that.

> Loudon County:
> Loudon County hadn't done too much for compliance. We weren't geared up to do it. Then through the Co-op, we could better meet requirements.

> Lenoir City:
> We not only meet the state requirements, but I feel comfortable with it. The fact that Jerry is

in the background . . . in hearings . . . his expertise in general . . . Everybody has a high point with the Co-op. That's mine . . . These people will be at my side if I go to court.

With the implementation of the Psychological Services Program also came a significant shift in financial structure of the Cooperative. The member districts who had previously subscribed on a service-by-service basis were now obligated to an across-the-board committment to share Co-op administrative and clerical costs.

As Psychological Services moved to a predominent role in the program and funding of the Co-op, a shift in leadership occurred, as well. Jerry Morton increasingly became the central leadership figure of the Co-op, with Bill Oakes moving to a figurehead role until his death in 1976, when Jerry Morton was officially appointed as LTVEC Director. The dominance of Psychological Services over other aspects of the Co-op was reflected in the Board's decision to maintain Jerry Morton as full-time Director of Psychological Services, and to simply tack on an additional $3,000 to that salary to cover additional responsibilities as Co-op director.

The districts began to experience benefits from membership in LTVEC, as the Co-op increasingly enjoyed a surge of renewed credibility and fiscal feasibility. In an interesting new twist, an outside intrusion (Public Law 839), in which promises by the outside agent were kept, a reciprocal relationship was shaped which benefitted the districts and thereby revitalized the Co-op. Or as Mac McDowell of Monroe County puts it, "Public Law 839 became the life-saver for financing the Co-op, but the Co-op was the life saver for the school systems."

LTVEC: CIRCA '79

Entering the LTVEC milieu for an eighteen-day on-site visit in early March of '79, the observer was suddenly immersed into a flowing collage of people, events, places, attitudes, dialogs, joys, disappointments, and even a few dull, empty moments--a slice in the life of an educational cooperative.

Through these days, the Little Tennessee Valley Cooperative was busily about its routine activities in the slightly updated locker room area of the old Everett High School gymnasium on Everett High Drive. Psychologists moved in and out of the building, took phone calls, and huddled in twos and threes to discuss special cases. Phyllis, director of the Environmental Education Project, hurried about planning an upcoming three-day retreat for project teachers and administrators. Representatives from the Co-op member school districts and other neighbor districts--Knox County, Oakridge--convened to plan for the summer Gifted Program. The Board met, talked, decided that special snow day curriculum packages would be a super idea, determined that ALOCA must maintain its administrative cost responsibilities to the Co-op, and heard Jerry's latest ideas for restructuring the budget and for developing a Handicapped Education Center. The staff met, reported problems and progress, and exchanged war stories from their schools and projects. Gynden created budgets and alternative budgets for '79-'80. And Jerry provided direct leadership and support for all of these internal activities, while also communicating with TVA and other external agencies, and engaging in the yearly springtime negotiations with districts in deciding upon levels of program and budget commitments.

The purpose of the site visit had been to document a regional environment learning system, a network engaged in environmental education of some description--either formal or informal, in community or in schools. Early into the case study it became evident that LTVEC would fit no orderly or tidy definition of an environmental educational learning system. The Co-op was a network, and had to do with environmental education, but it had little in common with designed models and was, instead, a prime example of an organic, naturally-occurring system.

Observations of current operations of the Co-op in light of its history, as reported in earlier pages, have therefore led the observer to make a case for LTVEC as an alternative environmental education network, one which has utility in conceptualizing the nature and evolution of networks, and which seems also to enrich current definitions of environmental education.

LTVEC is a network involved directly and indirectly in environmental education of three types:

(1) The changing consciousness of the psychosocial environment.
(2) The restructuring of the political environment.
(3) The increase in individual and collective understanding of a responsibility for issues related to the physical environment.

The Psycho-Social Environment. Under Jerry Morton's leadership, promoting change in the psycho-social environment--particularly in schools, but also in the larger region--has been the primary target of the Cooperative's effort. Jerry came to the Co-op with an academic history in school psychology and a deep personal commitment to humanism and social ethics. For him, the greatest needs facing school districts and the people of the entire Little Tennessee Valley were needs for more nurturing and supportive environments, where individual needs could be met, and especially where the growing subculture of handicapped children endemic to the three-county area could begin to be remediated.

The outreach psychological services program had been the first major thrust in this direction. Psychologists first tested students for handicapping conditions, assisted in the identification of the child's needs, and participated in the planning of an individualized educational program (IEP) for each child, a program that would be essentially within the mainstream of the system's overall educational program. At the time of the case study observation, psychologists had become increasingly involved in the implementation of the IEPs and were being further utilized as consultants for special problems of teachers and administrators. Problems related to the promotion of affective growth and development of individual children, classroom climate, communications with parents, and even discipline problems now often come under the influence of the psychologists.

School districts are under constant threat of suit since the passage of state, and, later, federal laws regarding handicapped education. Note, for example, the following

case discussed in a recent educators' newsletter (University of Tennessee, College of Education March, 1979):

> A recent article in the Cleveland (Tennessee) Daily Banner reports a due process hearing decision involving a 14-year-old autistic child. The hearing officer reported a four-part decision as follows:
>
> --'That the Cleveland City School System is attempting to place Jeffrey Wade Rayburn in a special education program which is inappropriate to his condition and need.'
>
> --'That the Cleveland City School System is "denying educational services because no suitable program of education or related service is maintained."'
>
> --'That Walden House is an appropriate placement and that Jeffrey Rayburn should be placed at Walden House as soon as possible'
>
> --'That Walden House should provide reports and all other data or procedure considerations to allow the Cleveland City School System to conduct monitoring activities as mandated by law and rules and regulations of the State Department of Education. Program must be reviewed annually.'
>
> Walden House is a private agency in Nashville which specializes in care for autistic children. Evidently it is the only such facility within the state. The cost to the Cleveland City School System will be $18,000 per year.
>
> This is an example of the tremendous impact of PL 94-142 and Section 504. Some would argue that local schools cannot stand this type of expenditure. Such an argument has some validity. The argument could also be set forth that if this child could have been identified at age three and appropriate placement in the least restrictive environment started eleven years ago, that costly residential care would not now be necessary. The latter may be speculation. Nevertheless the present law is real and individuals working within the schools must be able to recognize signals and to identify handicapped conditions. Autism is a low incidence handicap; and many of us would know nothing about the cause, symptoms or required treatment.

* * * * *

> It seems essential that we work deligently to incorporate appropriate material in our courses and programs so that the graduates of this College may be able to cope with even the most unusual of handicapping conditions.
>
> --William H. Coffield, Dean.

According to Public Law 839, districts were liable if the special needs of students could not be met. Here again, the cooperative provided solutions or partial solutions to the problem. First, Jerry Morton gave the districts a language for understanding and articulating legal and programmatic responses to the needs of handicapped children. As one person interviewed described this influence, "Jerry has brought about remarkable change in the values and attitudes of superintendents, principals, and others in the schools."

Still the districts had few avenues for becoming more responsive to special needs. The Co-op assisted by beginning to develop speciality programs. At the time of the site visit, in addition to regular psychological service, the Co-op had become instrumental in several additional programs which were also impacting the psycho-social environment of the region:

Handicapped Child Development Program
Class for hearing impaired
Physical therapy and speech therapy services
Program for enotionally/behaviorally disturbed gifted students
A preschool child find program for locating young handicapped children
Program for gifted youth.

Through the efforts of LTVEC, the consciousness of the districts is observably sensitive and atypically advanced in the area of affective education, and according to reports of superintendents, principals, and teachers, the psycho-social environment in schools is much improved over earlier years. In short, a language and action of caring is being spoken through the LTVEC network, as reflected in one teacher's response to the question, "What are you doing in your school?" --"Trying to care, I guess."

And this plea for meaningful changes beyond schools and into the larger psycho-social community environment is being voiced more broadly, as Jerry Morton appears at hearings on the future of the Tellico Dam Project, and writes to David Freeman, the new chairman of the TVA Board:

While we are proud of LTVEC's record and the cooperative spirit of our communities, there is a limit to what the school systems and communities can accomplish when addressing regional issues with local resources. LTVEC is identifying and reaching some of those limits. The list ranges from generalized problems to detailed specifics. For example, (1) we need a centrally located Special Education Center (Vonore area), (2) we need a coordinated effort among all human service agencies to effectively serve the high incidence of adolescent pregnancies to include assistance to the surprisingly large number of young women (12 to 17 years of age) who decide to keep their babies, (3) we need to establish alternative school-type programs for the emotionally/behaviorally difficult student who is constantly being expelled or absent from school, (4) we need more effective adolescent gynecological services to cope with the diagnostic and follow-up work for the high incidence of sexual child abuse being found, (5) we need region-wide planning and strategies to cope with the over-crowding of schools as a result of people moving into the area, (6) we need more comprehensive mental health services to cope with the ever increasing emotional crises our population seems to be experiencing as a result of the pressures created by new people moving in and continual demands to change life styles at an ever increasing rate, (7) we need region wide transportation planning to cope with the tourists, the cost of gasoline, and busing of children to school, (8) we need a regional approach to cope with the lack of or over abundance of medical services to specific communities, and (9) we need a regional approach to water usage, waste disposal, and industrial development.

The Restructuring of the Political Environment. Networks are typically political enterprises. They are formed when smaller, individual units judge coalescence to be somehow desirable, profitable, or beneficial to their individual interests (i.e., interests in money, power, ideology, etc.). Networks, once operating, are maintained because they continue to serve the political interests of participating parties, because they are resistent to change, or because they are externally controlled.

The impetus to the formation of LTVEC was initially very powerful. As described earlier, two forces encouraged this coalescence: (1) the threat of impact of the model city upon the region and its school districts, and (2) the promise of money to accompany this impact. At this phase of the Co-op, however, the actual cooperative exchange was little more than shared planning. As expectations for Timberlake dwindled, another political concern replaced earlier ones--the districts became in urgent need of means to implement the Handicapped Education Law. Now real collateral entered the network exchange--to individual districts went psychological services, legal aid, and consulting; and from the districts into the maintenance of the cooperative went financial support. In addition, other services came available for very little additional cost. So for a long while, it was much a story of the fishes and the loaves. The districts gave a little, and received much.

To say that there was a cooperative educational network in existence over the past nine years is not to say that the primary mode of political activity of the various districts was a cooperative one. In fact, their investment in cooperative exchange was relatively slight, impacting less than twenty percent of their students, and for the most part, they continued as solitary, individualistic political federations concerned with local problems, and meeting them with parochial views and solutions.

Then and now, the importance to the districts of autonomy before cooperation was realized by Jerry Morton, and clearly established as part of the LTVEC rationale. Note the following quote from a recent LTVEC proposal:

> Several years ago seven school systems in Southern Appalachia decided to work together on special projects to enhance their services to children without sacrificing their individual autonomy.
>
> It is important to note that each of the school systems had and has its own unique way of making decisions, implementing policies, and concepts about its educational goals. Their commonality lies in their desire to serve the children in the best possible way and the commitment to cooperate, when possible, with each other.

Still, formal and informal network interaction was steady over the years, and the Cooperative became a stimulus for ongoing political discussion and collective political

concept development related to a wide range of educational and public issues. The legal rights of children and parents; building concern and establishing local action on the question of tax base, school consolidation, career education, programs for the gifted, TVA's responsibility to the region--all entered the arena of network dialog in one form or another. And so, in addition to an exchange of services for dollars, LTVEC was also operating to provide an opportunity for the development of a shared, sophisticated, and unified political consciousness.

On the surface the districts' continued participation in the Co-op is strictly of a utilitarian nature. According to one superintendent:

> "As long as the Co-op is providing services and is cost-effective, it will be supported. When it is no longer cost effective, it won't be supported."

Still, there are indications of a deeper network operating among the seven districts, a network based on unspoken person-to-person commitments, a comraderie built upon empathetic understandings, on shared problems, on a sense of fraternal belongingness which strengthens group cohesiveness and resists external infiltration, and on a shared admiration and trust in its leadership figure, Jerry Morton. Board members make occasional reference:

> The Co-op is a common meeting place. I begin to see the problems of Floyd P. over in Blount County and so on . . . Also, Bill H. I would have never known him as well as I know him now if it hadn't been for the Co-op. Now I feel freer to talk with him.
>
> * * * * *
>
> The Co-op has encouraged my awareness of other people's questions and problems.
>
> * * * * *
>
> It's helped me just to get with the group and share common problems. That's a big thing.
>
> * * * * *
>
> If Jerry remains director of the Co-op, our district will stay in.

Thus LTVEC has contributed directly and indirectly to change in the political environment of educational systems in the region. It has been instrumental in the development of political network, has been a catalyst to the development of shared political constructs, and has concurrently contributed to an underlying personal network which brings strength, resonance and resiliency to that political network.

Current Environment Issues. Probably no other region in this nation has been more consistently engaged in what we are currently naming "environmental issues" than have the people of the Little Tennessee Valley. Their birthright to roots along the Little Tennessee River brought with it a birthright to constant impingement upon their land and way of life by external forces which claim some alien rights upon the River and its resources of energy and beauty.

Even now, a visitor to the area is left with the feeling that in the early stages of Tellico talk, the upheaval surrounding the project was radical and intense across the region, in communities, and within institutions, including school districts. People were pulled between dreams of a Camelot and dread of another Oak Ridge. In many cases deep cuts were made through the marrow of systems in which the support and direction for communities and schools were located. A high school principal in Monroe County remembers some of the difficulties:

> Well, our Lions Club was a strong organization until one of the members introduced a resolution that they were opposed to the dam. But not everyone was opposed. So that sort of destroyed our Lions Club for awhile. The same thing happened in PTA. We didn't start it back until four or five years ago. It got to a thing even your friends didn't necessarily agree with you.

The struggle, for a time, was one of survival and of maintenance of a semblance of equilibrium. It was a time of reactions, rather than initiations; of buying the TVA line rather than taking community control and self-responsibility. Even LTVEC in its inception was essentially reactive, not proactive, in regards to planning and decision-making regarding critical environmental issues.

Eventually the smoke screens lifted, leaving the people of the Little Tennessee Valey scarred and cynical. Now, in the spring of '79, the environmental issues surrounding the Tellico Project have been resurrected by the congressional decision not to close the dam. Reactions of the Co-op member school districts, however, are now more cautious and reflect the wisdom of experience:

> Right now it's an emotional disturbance. From the beginning it was a split issue, still is a split issue. There was a loss of confidence . . . Most of us have adopted a wait-and-see policy--we got along without it and will get along with it. It took some of the more valuable farm lands. Has affected the roads. We have to drive buses farther to pick up children . . . It's kind of a no-man's-land thing now.
>
> * * * * *
>
> Now you don't hear too much about it, per se, in the community. It's sort of an attitude that people aren't going to be hurt.
>
> * * * * *
>
> It hasn't had the effect that everybody thought it would. When they started buying up farm land and moving everybody off, they just moved right out here to the other side of the community, so enrollment hasn't changed much.
>
> * * * * *
>
> It's something we read about in newspapers and see on TV. Most of the people in this area are for it at this point. Here it sits. Ninety-eight percent complete . . . People think it's stupid for $100 million to be sitting over there useless. The people against it in the beginning feel it makes a mockery of the court system.
>
> * * * * *
>
> The Tellico Project didn't affect us. Economically, we'll lose the tax base. If it goes, we'll have people who move into the community.

Since the Tellico fiasco, among local people there has been a tendency to deny or discount environmental issues, and an active distaste for "environmentalists." Still, the people subscribe to environmentally sound values. Jerry Morton describes this attitude:

> Environment is such a dirty word here. An environmentalist is a missionary who is coming in and has no idea what is going on, and says, "You're not going to be able to earn a living because we're going to save this unique earthworm here." Environmentalists are outsiders. They fly in representatives from the Sierra Club who talk about flying in fishermen from Nevada, yet you know they won't arrive. Still, fundamentally these people are extremely environmentally oriented.

One modest effort toward directing this environmental orientation is the LTVEC Environmental Information and Personnel Integration Project currently funded through a grant from the Office of Environmental Education. In a recent project report overview and goals were stated as follows:

> The overall objective of this project is to integrate environmental information into the professional and personal lives and perceptual sets of selected high school teachers and administrators so that their individual understandings will lead them to appropriate curriculum ranges. This objective will be accomplished through a two-part effort. First, recognized experts will present environmental information to the educators. Then, through small-group strategies, the educators will be assisted in integrating this information into their own personal realities. Our hypothesis is that once the above is accomplished, the educators will initiate curriculum adjustments to teach their students the newly-acquired insights as part of their normal subject matter. Through these strategies, we hope to overcome the traditional difficulty of transforming environmental information into professional and personal behaviors and ultimately to the classroom.

In the project, teachers and administrators come together for Saturday workshops in which certain "experts" on current environmental issues share information through lecture, media, and discussions. In after-school follow-up sessions, a consultant with expertise in group process facilitation conducts small group follow-up, integration and extension sessions.

The sharing of information is seen as important, and certainly curriculum development is desired, as well; but the real hope of the project seems to be that it will create the beginnings of an environmental action advocacy network within the region. The project is very much an extension of philosophy and planning of Jerry Morton to increasingly engage LTVEC in meaningful involvement in the environmental issues and related regional planning. Bill Poppen, the project group process consultant, summarizes that motivation:

> He (Jerry) was concerned about the process of change and how it works in this area; how communities react to change and how change takes place. He saw the project as training awareness raisers rather than curriculum developers.

Jerry Morton himself has said on one day to the observer:

> We hope the people in the project will move from pacifists into people who are involved. And this will serve as practice for them to extend their project experience into this new setting.

And again on another day, to project participants:

> There is a mass of (environmental) information. Relating this information to school districts is the responsibility of these persons in the OEE grant.
>
> You will initiate and create a process of what kinds of (environmental) planning needs to take place, and in your classrooms, what kinds of experiences need to take place for kids to do this sort of planning.

Mr. Sparks, principal of Vonore High School describes the content of those sessions consistently with other participants:

> We've hit on some things that were real informative. It's things you wouldn't think of finding out for yourself.

In the sessions observed, dialog was open and active. Topics of all sorts were introduced, discussed, haggled over, laughed about, then set aside for other topics. Snatches from the discussions indicate something of the nature of the whole:

> (About mass transit and new expressways.) That's just feeding the problem. You're talking about laying down more pavement for these cars. It's just like the world food problem--the more we feed these people, the more there will be.
>
> Maryville and ALCOA don't really work together. Maryville needs the water system Alcoa has; Alcoa needs the sewage treatment system Maryville has.
>
> I'm gonna fill my truck up just as long as I can, and when it runs out, me and Jimmy Carter are gonna walk home.
>
> If unused land of Tellico were reforested, it would probably provide more energy than the dam.
>
> Teach them to read, write, and cipher, and work the hell out of them.
>
> I need to know how to work with children who come from homes that have no love.
>
> Ralph Nader has said our schools have more problems than they should tolerate and more solutions than they use.

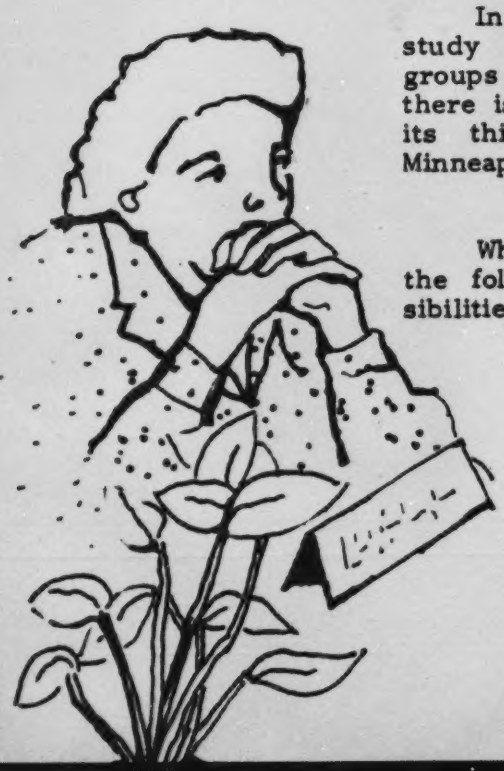
Final Thoughts

The case study of the Little Tennessee Valley Educational Cooperative falls far short of providing an archetypal Regional Environmental Learning System. It does, however, seem to offer several insights into the nature of networks and networking. Observations from LTVEC and the Land Owners Organization remind us of that which we already knew--networks are little more yet nothing less

than human processes, complete with all the foibles and equally repete with unlimited and immeasureable potential. Networks are observably more organic than mechanical. They are complex, non-linear, resilient, yet fragile. They have lifetimes, and must germinate and mature before becoming fully functional and productive. They demand time and space for growth and their development charts mandering pathways to strange cadences.

Plastic networks, like the Charrette, cloned overnight; pressed, pushed, and artifically rewarded to produce network-like processes generate plastic, mechanical outcomes, and fail as networks. In sum, networks are part of the living environment, and our desire to understand, utilize, manipulate and control them brings the same gains and risks from which we have sometimes learned and too often failed to learn in painful lessons through previous experiences with control of other segments of our living environment.

THE CITIZENS LEAGUE



In every city from time to time citizens join together to study environmental and other social problems. Most groups last a few months, some a few years. In Minnesota there is a metropolitan study group that will soon celebrate its thirtieth birthday. It is the Citizens League of Minneapolis-St. Paul.

When the Citizens Program Committee met in January, the following were among those being considered as possibilities for the 1979-1980 research year.

(108) How to select sites for undesirable environmental uses, such as power plants, power lines and solid waste disposable facilities.

(109) State policy toward copper-nickel mining, including whether to encourage, method of taxation, and type of environmental regulation.

(110) Regional water policy, including assurance of good supply of surface and underground water in Twin Cities area in coming years.

(111) Pricing of electrical use and other energy sources.

(112) Potential of alternative systems, such as solar energy, wind power, and internal sewage systems.

(113) Planning, owning and operating district heating facilities.

(114) Desirability of mandatory vehicle emission and safety inspections.

(115) Area-wide policy to encourage and facilitate recycling of solid waste.

(116) Stimulating the building and maintenance of cities which are both human and beautiful.

(117) How to reduce energy usage without negative impact on jobs and the economy.

(118) Planning for energy usage in Minnesota over the next decades.

(119) Optimal use of land around lakes in the Twin Cities area.

(120) Pollution control standards on commercial and industrial development.

Unfortunately for environmentalists, there were 194 other topics bidding for attention. By May the list had been reworked and reduced to twelve. Two environmental topics were still among them. These were:

(1) Selecting Sites for Undesirable Environmental Uses
(2) Designing a Pricing System to Promote Energy Conservation without Placing a Burden on Low Income People.

And of course, it is reasonable to expect that several other Study Committees will get into environmental issues as they do their work.

In identifying possible study topics, the League committee had heeded admonitions in the Fitzgerald Report of 1974:

> There must be a fundamental re-thinking of the process by which our work projects are selected. Input must be broadened. Ways must be found to add projects throughout the year. Others in the community should be consulted with more fully . . . and the results of our appraisal of community problems should be more fully shared with these other organizations. (p. 4)

In the League office in the Syndicate Building in downtown Minneapolis they keep a file of ideas from newsletters, journals, and the media. Exchanging letters with public officials and talking with research and planning people are also ways of gathering ideas for possible topics. Weekly breakfast forums generate other possibilities.

The Program Committee uses certain criteria in deciding on the final list of topics for study. Some of these criteria are: importance and urgency to the community, cost benefit, the probability of recruiting volunteers, the prospect for implementation of the recommendations which might be made, awareness of the public in the subject and the prospect of the issue being settled by reasoned analysis rather than by emotional factors.

THE WORKINGS OF A STUDY COMMITTEE

Each Study Committee is comprised of citizens who have paid the twenty dollar membership fee to join the League. Many join just for the privilege of participating in one topic's deliberation; some join just to receive minutes of weekly meetings. On the sign-up form the members tell some characteristics about themselves, including any "special interest" involvement. If it appears to the Program Committee that there is an "imbalance" in the newly-forming committee, it recruits additional persons likely to diminish the imbalance.

The Study Committee convenes for a long evening's meeting every week, usually for the better part of a year. One of the members serves as chair. The greatest share of the work is done by a staff member employed by the League. Most of these staff members are former newspapermen, well acquainted with the history, organizations and activities of the community, and skilled at writing a set

of minutes that is terse, cogent, complete and about as interesting as minutes can get. For example, from the Committee on School Desegregation's April 17 minutes:

> The meeting was called to order at 6:40 p.m. by chairman Stephenson. Minutes of the meetings of April 10 and March 27 were distributed.
>
> Experience of the Grahek Family--The chairman introduced May Lou and Carl Grahek and their daughter Julie. The Graheks have lived in the Lexington-Hamline Community for twenty years. They are a White family and their children have attended integrated schools. In fact, they were attending predominately minority schools before the desegregation occurred . . .

The staff member makes the many arrangements needed and, in successive revisions, prepares drafts of reports the Study Committee will submit to the League's Board.

One of the things that a Study Committee does first is to acquaint itself with the facts of the issue under consideration. This is done chiefly by inviting resource persons (the scholars, the aggrieved, the greatly experienced) to appear before the committee to present information and to discuss matters with members.

Some years ago, one Committee was studying "environmental choice," more particularly, the mechanisms for resolving issues and conflicts in the use of Minesota's environment. The following would be typical (though it did not actually happen) of the discussion one evening:

> Resource person: I want to express my opposition to creating the Office of Environment Assistant to the Governor. If the Governor someday is unsympathetic to environmental concerns, he would appoint someone who will give us lots of trouble.
>
> Staff member: Do you favor an official who is semi-independent, possibly totally independent of the Governor?
>
> Resource person: I don't know. It depends on how he or she would be appointed.
>
> Committee member: The Governor's Office is the most visible spot in the state. That's where the power is. And that is where people see what is going on. Of

course it can be misused. But isn't that where people can best see what is going on? If we happen to get an "anti-environmentalist" for our environmental assistant, isn't it best to have him out in the open where we can see him?

Committee orientation may take the form of seeing things for oneself. A few years ago a Committee studying the "use of the Mississippi riverfront" undertook two boat trips to gain a first-hand view. It travelled on the Jonathan Padelford to see the riverfront from downtown St. Paul to a point just south of the Lake Street bridge. Later the Committee viewed the river between Grey Cloud Island and downtown St. Paul on a towboat furnished by the J. L. Shiely Company.

THE ISSUES

A summary of testimony, observations and discussions becomes the first draft of Committee findings. The Committee usually spends a month or more preparing findings, going through two or three drafts.

A Committee that studied the "control of Dutch elm disease" presented findings such as the following:

> Public interest in Dutch elm disease has increased in direct proportion to the incidence of the disease. In 1976 public interest in Dutch elm disease became higher than ever before. Large red paint marks were used to identify diseased trees, and because so many trees on streets and parkways were discovered, the public naturally became aware. . .
>
> However, it is not clear if high public interest will be sustained. If in fact the Twin Cities area is successful in curbing the rapid spread of the disease, then trees will remain alive longer. It is possible the result would be a drop of public support for a control program. Syracuse, N.Y., for example, had a first rate control program from 1957-1964, but then public support waned, the disease took over, and almost all elms died.

In the light of such findings the members of that Study Committee became increasingly concerned about the issue of public awareness and understanding. After a number of discussions the chairman of the Committee summed up the consensus of opinion among members in the

following statement (included as one of the conclusions in the report):

> Unfortunately, although public awareness is high, public knowledge of what to do about the problem is woefully inadequate. Misinformation may be worse than no information at all. We must find a way to correct information conveyed to the public and to public leaders.

The Committee went on the discuss specific steps to be taken to remedy this problem. After careful deliberations the members of the Committee reached a unanimous decision:

> We recommend the legislature set aside a significant portion of state funds to finance improved public education, with the provision that a portion of the education funds be earmarked as matching funds to qualified private groups.

The final testing ground of a report, of course, is the community itself. Hence League officers consider it important that understandings of the problem, and its solution, must be concurred in by a broad range of organizations and individuals, both public and private. A Community Information Committee takes on this role of communication with the community.

Environmental education situations change quickly, of course, and even a new report can be out-of-date. In such instances, the Community Information Committee may suggest to the Board that another study be programmed on the same issues.

Since 1952, the year it was founded, the League has issued recommendations on nearly 300 matters of public concern. "Whenever we do a report," says a League board member, "somebody at the legislature is ready to sponsor the results." In fact, many League recommendations have been adopted into law. Equalization of School District financing, establishment of an urban regional governmental body, the Metropolitan area, and the sharing of medical facilities between a public hospital, Hennepin County General, and a private one, the Metropolitan Medical Center, are among the many League recommendations adopted into law.

"The Citizens League has come to be recognized as the single most effective organization in the whole country," says Verne Johnson, a former League Executive Director and President. In the words of John Yngve, a former state legislator, "I doubt if there's another organization that comes close to the effectiveness of the Citizens League in its causes and orientation."

The League is not without detractors. Some critics see the League as an organization of liberals and elitists. One local businessnan was quoted complaining that "it's a downtown lawyers' group."

There are, in fact, a good number of attorneys (from the suburbs as well as downtown)--but a similar number of university faculty members and former elected officials among League members. According to a 1977 article in Corporate Report, some critics of the League have pointed out that of the 3,000 individual members, only 450 are from St. Paul and of the corporate membership from St. Paul, as few as 100 out of 600 are from St. Paul. Women, minority groups and low income citizens are, according to these critics, also poorly represented in the League. The critics draw attention to the fact that about a third of the League's 36-member Board of Directors are businessmen and a quarter are attorneys. The remaining membership is composed of government officials, university professors and others. League documents indicate a continued awareness that the Committee purview may sometimes be limited. (See more on this in the next chapter.)

The League has changed, of course, across the years. It has slowly evolved into an area metropolitan organization concerned with all social problems. In the beginning it concentrated on government initiatives to raise taxes, particularly for financing public buildings. It reviewed candidates for public office. In subsequent years, it stopped evaluating candidates and assumed its present focus on issues.

The Citizens League is a non-profit organization. Its efforts are financed by 90 of the area's 100 largest private and public companies, by 500 smaller businesses and by the twenty dollar membership fee.

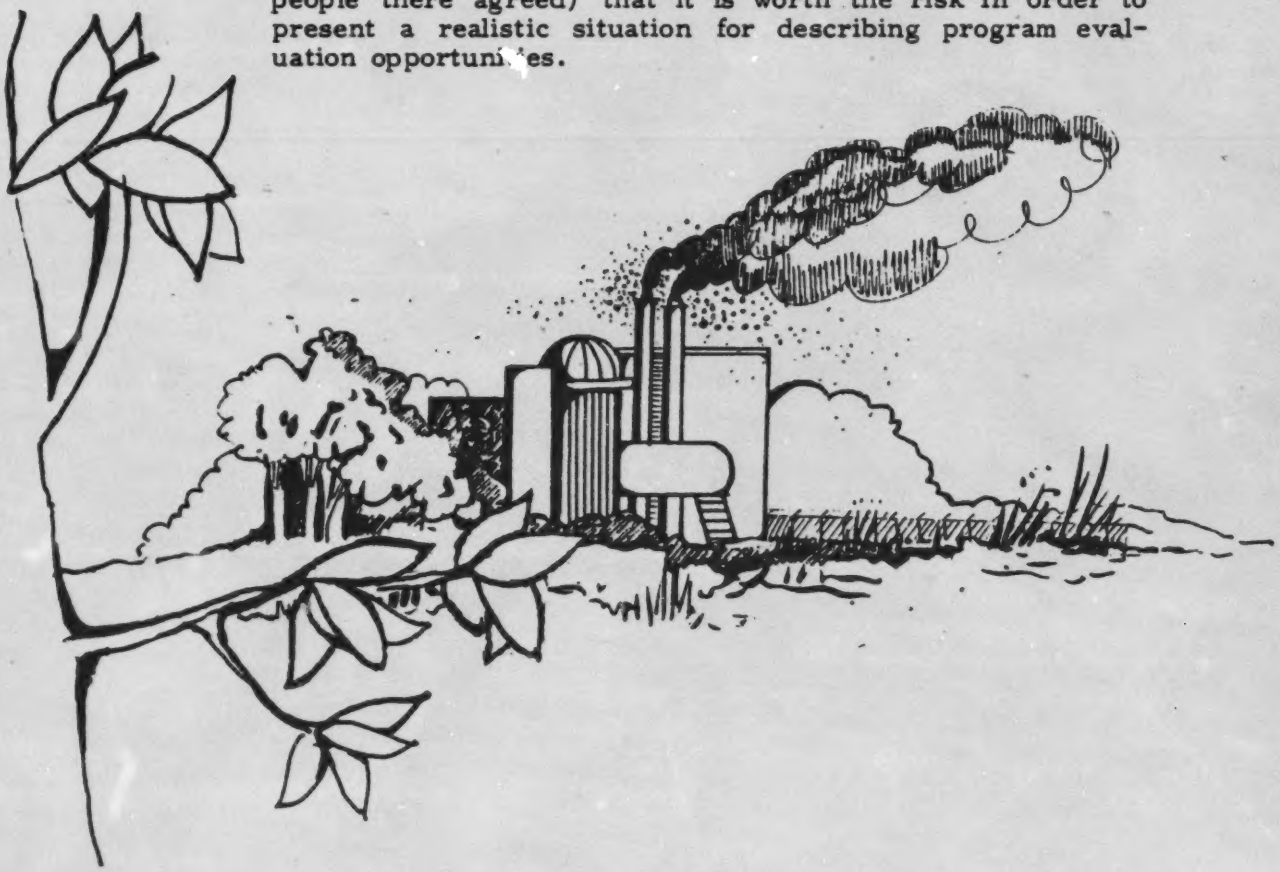
Since 1974 the League has been increasingly involved in studies of community systems that are heavily non-governmental, such as health care, housing, transportation, public safety, and education.

Environmental issues have been given special attention in recent years. As indicated earlier, thirteen environmental topics were among the 207 possible topics considered for the 1979-1980 research year. Two of these topics were included in the semi-final list of twelve topics. This may be an indication of growing awareness of citizens living in urban areas for the ways environmental problems affect their lives. As the Citizens League moves into its fourth decade, it demonstrates again and again that citizen study groups can deal effectively with complex social problems.

OPPORTUNITIES FOR EVALUATION

In this portion of the RELS Evaluation Manual we will suggest some typical evaluation opportunities to be found in environmental education projects. In the fifth chapter we will consider how a Unit might be organized to undertake evaluation studies on a regular basis. The purpose of this chapter is to describe some of those needs and to suggest what might be done.

We will continue to emphasize the problems and context of program evaluation inquiries by continuing to discuss LTVEC and the Citizens League. From here on however the story is fictitious. We will be imagining what the people in those two situations might do to evaluate. There is a bit of risk here in misrepresenting those two projects. We (and people there agreed) that it is worth the risk in order to present a realistic situation for describing program evaluation opportunities.



Illustrative Application #1

AN EVALUATION STUDY OF DECISION-MAKING

Focus: The LTVEC Board of Directors

Imagine that the Tennessee State Department of Education has recently been considering funding the Little Tennessee Valley Cooperative and might establish two or three additional cooperatives for educational services, the State Department decides to evaluate LTVEC formally. Informal evaluation in past years has led the Commissioner of Education to believe that LTVEC could serve as a model for new cooperatives. He feels, however, that they need to be cautious about how decisions are made in a cooperative among autonomous institutions.

The Commissioner's staff suggests documenting and evaluating the decision-making and policy-setting process of LTVEC. They feel that organizers of new cooperatives might benefit from seeing how an existing system functions. If there are hazards to be avoided they want to recognize them during planning and proposal reviewing sessions. The Commissioner is specific about wanting recommendations for improving LTVEC to be included in the final report.

A Blue Ribbon Panel. Representatives of the State Department of Education met in January with the Executive Director of LTVEC. Together they decided to commission a panel to conduct the LTVEC evaluation. The panel would consist of distinguished citizens, at least some of whom are known for contributions in fields related to environmental education. Four individuals accepted the Commissioner's invitation:

Daniel Lounsbury, U of T Dept of Sociology (chair)
Creed Gilpin, retired, formally State Court judge
Eleanor O'Day, school superintendent and naturalist
Mary Evelyn Wiggins, Community Services Director, ALCOA

Each was offered an honorarium of $1000 and expenses of course were to be covered. Total costs were not to exceed $7500. A graduate student, Jill Hubka, was employed as staff assistant to work 3/4 time for one month at a cost of $600.

A list of 15 questions were developed to serve as a basis of inquiry:

(1) What is the formal governance structure of the Co-op?

(2) What are the patterns of the decision-making process?

(3) How do issues get on the Board of Director's agenda?

(4) How are new programs conceived, decided on, and developed?

(5) How are alternatives generated?

(6) How are policies set?

(7) How does LTVEC define itself? Does this affect the decision process?

(8) How are conflicts at the institution level resolved? What are some of them?

(9) How does public opinion affect policy and program decisions?

(10) How are decisions evaluated?

(11) Is there formal review to decide on program continuation and modification?

(12) How do financial constraints affect the decision making process?

(13) What changes would various people like to see and why?

(14) How do individual Boards of Education affect the decision making process?

(15) How, if at all, has the State Department of Education, influenced LTVEC?

The panel meets for the first time in the Office of the Commissioner with the Co-op Executive Director and several of its Board of Directors present to discuss the need for information and cooperation. Later that morning the four panelists meet to devise a plan of action. (They had agreed to complete the job in four weeks, to make their report by April 1.) The following chart illustrates the three main methods of inquiry decided on.

Method of Inquiry	Data Source
Observation	(1) Co-op Executive Board meetings
	(2) Co-op planning commission meetings
	(3) Co-op staff meetings
Panel Interviews	(1) Co-op Board members
	(2) Co-op Executive Director
	(3) Co-op project directors
	(4) Staff members
	(5) Principals
	(6) Consultants
	(7) Co-op Executive Secretary
Document Analysis (principally by aide)	(1) Official records of past Co-op meetings
	(2) Past evaluations of the Co-op
	(3) Press releases by the Co-op
	(4) Booklets developed describing the Co-op
	(5) Newspaper clippings
	(6) Budget reports
	(7) Funding proposals

Each panel member was to be involved with each method of inquiry. They established an expectation of continuous communication among themselves so that they could verify information collected and discuss problems, concerns, and generally shape the direction of the evaluation study as a group.

Panel members agreed they needed lots of information to consider the 15 questions. Standardized instruments were not seen to be useful because there were too few persons to contact (and too little time and money to devise good standard forms). The panel members would have to be the data gathering instruments.

They acknowledged that Professor Lounsbury was more experienced in data gathering of the sort needed. He agreed to coach them and said:

> A panel such as this is not usually obligated to provide others with a good record of what is going on. In this instance we are asked to document LTVEC decision making, but we can hope to do this only in a very general way. For us to understand LTVEC as best we can we will want to record the most salient facts and ideas. Let us each agree to keep a notebook with entries that some one else can make sense of, and to share those notebooks (or photocopies) regularly.

He suggested that they read Richard Brandt's book, Studying Behavior in Natural Settings and made photocopies of Chapter 4, "Measurement Through Observational Procedures" for each of them. At their next meeting Judge Gilpin brought Arne Trankell's book, The Reliability of Evidence, to help them think about that.

Observation. Observations were used to gain first hand knowledge of decision-making activities of the Co-op. Events were recorded naturalistically in the observers' notebooks. Using tape recordings and the notebooks, one meeting was summarized by Jill Hubka in the following manner:

> The Co-op staff gathered around the two large conference tables in the back office of the Co-op's facilities. In attendance were a dozen or so graduate students for the University of Tennessee currently involved in an internship with the Co-op. The meeting was run by Environmental Education Project Director and the Executive Director of the Co-op. The latter began the meeting by informing the group that he had some bad news. He proceeded to explain that one of the seven school districts the Co-op serves had decided to pull out of the Psych Services program. Responding to many questions, particularly those from graduate students whose jobs would be eliminated, the Director said:
>
> > Well, think of this in terms of systems analysis and change. We can learn from this whole thing about how systems change. I knew I could have spent more time with each principal, smoking and joking, and maybe this wouldn't have happened. But now we can learn lessons for other systems that are similar. One of the overall objectives of the Co-op is to do the feasibility research and develop, but not take over, the individual school system. I haven't failed as a person nor have the rest of you as a group.
>
> A student asked if the Director thought the Co-op was eroding. He replied:
>
> > The seven systems think of themselves as a support system--as opposed to the other systems outside the Co-op. The seven superintendents consistently confer with each other, and sit with each other at meetings out of the counties. They are like brothers and clearly see themselves together and they feel obligations to each other.

By observing meetings such as these, the panel members were able to see, hear and feel some of the workings of the Co-op. The above sequence, for example, provided valuable insights on how the Director views the role of the Co-op and the relationships holding the Co-op together.

Interviews. The interviewing approach and the questions themselves differed depending on who was being interviewed. Though they did not standardize the interview, each panelist anticipated in advance a few questions to ask, phoned them to Jill Hubka who merged them, identified overlap and omissions, and prepared a master list of a few key questions and an indication of who probably would ask each. The list for each superintendent included the following:

(1) How do you see the Co-op? What is its impact? How does it function? What are the most important events in its history? What are its strengths and weaknesses? (Lounsbury)

(2) How do decisions get made? (O'Day)

(3) What are your purposes for participating in the Co-op? Are there some grand, long-range goals that it serves? Are there political advantages for participation by your district? (Wiggins)

(4) What are some of the critical educational problems for your district at this time? (Gilpin)

(5) What do you see as the future of the Co-op? Should there be more Co-ops across the state? (Gilpin)

(6) How has environmental education been changing in the region? How, if at all, has the Co-op affected it? (O'Day)

Other questions arose in each session, partly to clarify responses and partly to capitalize on the uniqueness of each superintendency.

Others were asked similar questions. As many panelists as could attend did so. The sessions were taped. Usually the sessions were quite informal, as they were particularly in the case of the inservice training specialist. Her responses led them into lengthy discussion of teacher interest in service training and willingness to participate in joint school/community projects.

Informal interviews by Jill Hubka were held with teacher participants in an environmental workshop. She also held informal interviews throughout the month with the Executive Director, tho he was interviewed

formally by the panel too. One interview consisted largely of Jill sharing her perceptions. Key ideas from the notes and tapes were filed in a topical file that Jill set up. (She had a file folder for each of the 15 questions plus some other topics such as school/community cooperation; energy saving; state/federal regulations.)

Document Analysis. Document analysis served as a basis for gathering information on the intents and actions of the newspaper clippings. The following exerpts were among those filed in Jill Hubka's topical files:

When the Co-op was in its beginning stages, public relations was a big concern. The Board of Directors agreed that "early visibility should be sought."

Board Notes, Sept 1971

The Board requested from the Director information on public relations, which was promptly provided by the next Board meeting. The document submitted as the "LTVEC PR Plan" stated that the objectives of the PR Plan were to:

A. Acquaint general public with purpose, objectives, plans, methods, progress.
B. Generate personal involvement and commitment to LTVEC program by professional educators within affected school systems.
C. Generate personal involvement and commitment to LTVEC program by a significant number of community citizens outside the education profession.
D. Gain support of a majority of the general public for LTVEC program.

The report stressed that: "The essential characteristic for success of any public relations program is an open and sincere approach to the public concerned."

Documents, as illustrated above, were used by the panel to add to their understanding of the formal decision-making process. Generation of the PR Plan and the subsequent media compaign to promote the Co-op added to the knowledge of the panel members in attempting to determine how Board policy is generated and turned into action.

Exerpts from the Panel Findings. The Blue Ribbon Panel compiled the data collected through interviews, observation and document analysis into a formal report. The various sections of the report addressed the initial 15 questions.

It had become apparent that the State Department of Education had from time to time made an impact on the operations of the Board. Though it had not initially been a key concern, substantial follow-up questioning and telephoning had been devoted to this topic. The following is an exerpt from the report:

The State Department, from time to time, has either made direct requests or offered suggestions to the LTVEC Board of Directors. The changing of the composition of the Board is illustrative. The original structure of the Board was created by the Charette and did not include superintendents as Board members. However, at the end of the first year of operation, the State Department of Education evaluated the Co-op and recommended that superintendents be added to the Board. The co-op responded by inviting the seven superintendents be added to the Board, but not as voting members. One year later the State Department requested that the seven superintendents be made voting members through amendment of the LTVEC charter. The Co-op responded by doing just that.

Thus, the State Department has had an impact on the LTVEC decision-making process. The Co-op has been resonsive to the desires of the State Department and has been concerned about maintaining a positive image and good communications with the Department.

Another major topic developed in the final report was cost-effectiveness. It had been stated repeatedly as a concern of the Co-op over the years. A 1973 news release stated the Co-op's intent to operate cost-effective programs:

> Small school districts lack the resources for all educational programs needed by their people. The costs of education are well-known, and the money pinch has most of us squirming in protest. One way to expand educational programs and services in a cost-effective way is to cooperate.

In January of 1974 the Coop's director wrote the State Department of Education and assured them that:

> LTVEC is now in the best condition it has been since its creation. We are providing superior cost-effective programs and services and we would certainly like to continue our services.

Special education services brought with it particular concerns to develop cost-effective programs. In August 1974, one of the problems came up at a Board meeting:

> Discussion centered on the prohibitive costs of some special education programs. The Board repeated its earlier concern that LTVEC staff members shall explore every avenue in seeking alternatives to such high cost programs, including searching for ways and means to construct a rehabilitation center in the tri-county area.

Developing cost-effective systems is a concern for other than the actual program areas.

> The Co-op decided to employ a consultant for cooperative purchasing. Those systems wishing to participate must do so by appointing a representative to the Cooperate Purchasing Committee. This committee would determine what items, specifications and quantities be purchased as well as bidding and other procedures to be followed. The cooperative purchasing program is to be on a limited and trial basis for the coming year. (Board Notes, Feb 11, 1977)

The Blue Ribbon Panel decided early on that they would not conduct a formal study of cost-effectiveness. The decision stemmed partly from awareness that the Co-op would shortly be engaged in developing an accountability report. That report responds to a Tennessee law requiring the establishment of an accountability procedure for co-ops. The bill originally came from the Comptroller's office after an audit discovered the misuse of a Co-op's funds.

If the Panel had decided to measure cost-effectiveness of a human services organization such as LTVEC numerous factors other than dollar and cents

transactions would have to be tallied, factors such as person-to-person commitments, time spent on shared problems, and the sense of belonging to advocacy groups. The fact that these values are impossible to measure objectively and accurately does not excuse them from consideration. Those people who claim that an organization asking for public support is obligated to cost out its services are either naive or obstructionist--the most effective organizations are no more effective at specifying their effectiveness than the least.

The Panel noted that educational programs are developed in a variety of ways. The LTVEC Environmntal Education program is an example of one way. The seeds were sown in 1971 when a lot of discussion at Board meetings centered around plans to develop a Human Resources Park. At several times during the year various Board members suggested an Environmental Center as part of the part:

> The potential of an Environmental Center in the Human Resource Center was presented. It was reported that an employee of TVA with considerable experience in environmental education helped set up such a center at Bays Mount. It was suggested that this center could become a demonstration and model for the whole East Tennessee Valley . . .
>
> (November 1971 Board notes)

In February 1972 the notion of an Environmental Resource Center (ERC) was reintroduced. This time the impetus for an environmental program shifted to fit a national plan:

> A review of the hoped-for ERC was presented to the Board. The Senate has recently approved and sent to the House a program which would establish environmental centers in each state and six regional environmental centers in the county. In cooperation with the Oak Ridge National Laboratory, TVA, the Boeing Company and the University of Tennessee, we hope to explore possibilities of gaining both a state and regional center for Timberlake.

By November 1972 it was apparent that Timberlake was fading from the picture and that the Co-op needed to make new plans. In reassessing their position, they discussed the position of the federal government and where monies might be available.

> It looks as if the prime stress in Washington for the decade of the '70s will be on career education, environmental education, and the use of educational t.v.

From this discussion followed decisions to write proposals in each of the three. Subsequently, further discussions centered on the various kinds of programs the Co-op could propose. The director was particularly concerned about how to fit in environmental education with the other programs.

> Maryville College is at the forefront of environmental education in this entire area and they operate the Tremond Environmental Center. This is relatively a new field and none of us really knows exactly which way we are heading. Most environmental education programs at the moment are aimed at 5th and 6th grades and very little is being done in the 9th grade - 12th grade age groups as well as adults in the Adult Learning Center, we believe that we will select this age group to be served by environmental education and thus connect environmental education and adult education.

It was 1978 before a grant for environmental education was actually written. When it was submitted to HEW on January 16 1978, the focus had shifted from Adult Education and a Learning Center to Teacher Education.

> This grant will attempt to change attitudes of key teachers and principals through pairing factual information and attitude change processes so that they will initiate their own curriculum strategies in a manner consistent with the needs as they see them. It is important to not need to be aware that change is coming and informed decisions need to be made to insure that those changes are beneficial, or, at least, nonharmful to humans.

At the August 9, 1978 Board meeting the Director informed Board members that the Environmental Information and Personal Integration Project (EIPIP) had received the HEW award of funds. By January 1979 the program was underway. The project director reported that administratively and content-wise the project is functioning smoothly. A University of Tennessee professor involved with EIPIP reported that as the project progresses, attention will focus more on

possible adjustment in curricula the educators may wish to make as a result of what they have learned.

The development of environmental education as part of the Co-op's program started with an idea to include a center in the proposed Human Resources Park, and finally came as a Teacher Education program. Program suggestions came from various Board members as responses to various forces, such as the possibility of TVA money, a national proposal to establish environmtal centers, a national stress on environmental education, and HEW guidelines for submitting a pro posal. From this example, it can be seen that the LTVEC programs are shaped by a variety of external factors, and in the end are primarily dependent on funding from new sources.

Recommendations. The Blue Ribbon Panel completed its study of LTVEC decision by making several recommendations. It had previously sounded out reactions to tentative recommendations from people of several backgrounds and LTVEC involvements. Arguments against their recommendations were considered and some modifications made.

In presenting the recommendations the Panel acknowledged that it had not had time nor sufficient wisdom to examine all issues and contingencies and did not expect the recommendations to be taken at face value by those much better acquainted with the history, the resources, and the responsibilities of LTVEC.

Still the panel members felt their reflections were largely valid and worthy of study. Thanks to the cooperation and contientiousness of the people of LTVEC and the communities it served, the members felt they had reached a substantial understanding of how decisions were made, and left unmade. They concluded that by and large the process was healthy, neither impersonal nor self-protective, admirably reliant on a concerned vigilance, and of course, still capable of improvement.

Illustrative Application #2

EVALUATING THE IMPACT OF AN INSERVICE TRAINING PROJECT

Focus: The LTVEC Environmental Information and Personal Integration Project (EIPIP)

The intention of this project was to provide selected teachers and administration with information about present and potential environmental issues in the Little Tennessee Valley, to help them integrate this information into their own perceptions and values and to encourage them to incoporate new insights on the environment within their teaching of the regular curriculum.

The essence of the project was a series of workshops in which the participants learned about environmental issues from environmental experts and discussed the meaning and importance of these issues for their own personal lives and the future of the region. It was hoped that the participants would undergo something perhaps not unlike a religious conversion and even to acquire an evangelical commitment to spread the good news to others. Effects on professional behavior were seen as a natural consequence of this new-found commitment to environmental education coupled with a sense of professional responsiblity.

These workshops had the following features:

(1) An eight-hour commitment per month from September through May. This involved one four-hour Saturday morning session per month plus two-hour after-school sessions per month.

(2) Attended by volunteer teachers and administrators sought from all the elementary schools, high schools and vocational/technical schools in the group of school districts.

(3) Encouragement given for at least two teachers and one administrator attending from each school so as to create an environmental education "cell" within each school.

(4) Saturday morning sessions focused on presentations by environmental experts of information about key environmental issues

followed by small group exercises and discussions both to clarify the issues and to consolidate the information.

(5) After-school sessions involving group discussion focused on heightened awareness and understanding of regional environmental issues and on increased commitment to personal and professional action on behalf of the environment.

The principal expectation of this project was that participants would internalize a concern for the environmental future of the region to such an extent that they would initiate:

(a) changes in their own personal lives to contribute toward conservation of energy and resources and to reduce human pressures on the regional environment;

(b) changes in their approach to the teaching of the regular curriculum directed at highlighting appropriate environmental issues arising from or related to the subject matter (such as through opportunistic references and discussions about the environment, e.g., air and water pollution in chemistry; choice of environmental examples and problems for exercises, e.g., graphing population projections in mathematics; assignment of projects with environmental component, e.g., English themes on life in the future, and so on); and

(c) discussions in their own school district about including more specific components about the environment within the school curriculum (such as adopting curriculum units on environmental issues, designing integrated studies of the environment, arranging environmental experiences for students, and so on).

The content of the Saturday sessions was organized around four main topic headings: regional economic growth; regional population growth; regional land use; and regional sociological change. The theme behind these topic headings was "anticipating and planning the future." Other more particular problems such as energy use, pollution control and food supplies were dealt with as consequential topics within the general framework.

An objective of the after-school sessions was to help participants explore for themselves the meaning of their newly acquired knowledge about the environment (through small group discussions of the potential impact of environmental changes on their personal lives) in the expectation that this would lead to greater personal commitment to environmental control and to public debate about its importance.

While the rhetoric of this project espoused the generation of a sense of community among educators concerned for the environment, this was expressed more in the sense of a convocation of believers than of a forum of professionals. The expected changes in professional behavior were seen as a natural consequence of increased understanding and commitment supported perhaps by a new-found belief in the urgency and righteousness of the cause and even perhaps by an aspiration to belong to a special "community of saints."

By intent, there was no attempt to build an ongoing capacity for participants to deal with the practical problems of incorporating environmental education into the curriculum whether this involves choices at the level of the classroom or the school system. No consideration was given to when, how and how much to introduce into the classroom or to suggest a curriculum should change.

In considering any instruction there are questions of relevance (such as whether the exercise is appropriate) and style (such as how to handle sensitive issues). Some new teachings will succeed both in complementing and supplementing the regular curriculum; some will fail on both accounts or perhaps fail at times but not at others. There will be a need to compare ideas, share experiences, consolidate skills. It is widely recognized that while some of this comes easily to some people, at least sometimes, other people need encouragement and help in getting ready for new teaching responsibilities.

This EIPIP project was not designed as a bold extension into curriculum development and classroom trails. Its focus was on teacher acquisition of knowledge and understanding about the environment and of commitment to action. Its resources would have been inadequate to such an extension. According to its rationale such an extension was considered inappropriate as a Co-op responsibility.

However, let us suppose that such an extension has been incorporated into the EIPIP project. What does the project look like now and how might we evaluate its impact?

Let us suppose that the basic structure of the project remains intact but with some changes. The Saturday sessions feature both large group presentations and small group discussions. The after-school sessions focus on sharing of ideas and development of materials for introducing environmental education in the school curriculum.

The environmental content of the Saturday morning sessions depends on the setting and the personnel. It has included topics such as:

(a) describing and monitoring the ecosystem,
(b) population pressures on the environment,
(c) land use policies,
(d) energy use and energy sources,
(e) domestic and industrial waste disposal,
(f) the earth's natural resources,
(g) water management,
(h) food production and distribution,
(i) pesticides,
(j) endangered species, and
(k) political/social/economic aspects of environment.

It also included topics of more local relevance, the environmental effects of a town plan, a nuclear power station, a dam construction, etc., or the complex interaction of local climate, housing, resources, human needs, aesthetics, economics, etc.

Emphasis has been placed on contacts between environmental experts and school personnel, and among the school personnel themselves (within and between schools) to generate an informal network. Information, ideas, experiences are to be shared, mostly informally and verbally.

Impact in the Classroom. The Director is impressed with the enthusiasm and regular attendance of the EIPIP participants, but wants to know how much good they are getting from the sessions. One of his LTVEC interns, Ray Szoke, is taking a course in Evaluation Methods and needs a project. Ray is invited to do what he can, but advised that it sometimes is difficult to satisfy two masters, a professor and a boss, at the same time.

Ray has been favorably impressed by a report of an evaluation of the training of Social Security Office managers. He takes a list of questions from that report and adapts them to the LTVEC situation:

(1) Is there a sufficient number of participants from each school to provide mutual support and encouragement?

(2) Do the participants represent a variety of opinions about the environment and the environmental education? Did they volunteer or are they obligated to attend? What sort of professional and personal backgrounds do they have?

(3) Has the project been adapted to suit these different backgrounds and circumstances, and to make use of their special knowledge and/or expertise?

(4) Does attention to energy tend to drive away attention to other environment and specific examples?

(5) What is an appropriate balance between general knowledge of the environment and specific examples?

(6) Are adequate information and examples provided on each issue, making it relevant at all levels represented by the participants?

(7) Which are valued more highly--regional or global issues? Are sufficient connections made between regional and global issues?

(8) Are the Saturday sessions completely and interestingly presented? What aspects of the Saturday sessions are most appreciated/least appreciated?

(9) Do participants become more knowledgable about both the global and regional environment as a result of the sessions?

(10) Are participants inclined to seek further information on their own?

(11) Do environmental issues make participants alarmed and anxious?

(12) Are there problems in the relationship between Saturday and after-school sessions?

(13) Do the teachers become persuaded to incorporate aspects of environmental education into their own teaching? What successes and failures do they experience?

(14) Are the sessions providing useful ideas for incorporating environmental education into the curriculum?

(15) Do project participants contact each other about environmental education or other matters?

(16) Have the attitudes and behaviors of participants been changed by the project?

(17) Is the incorporation of environmental education into the regular curriculum raising issues considered too sensitive, political, or offensive for classroom consideration?

Ray's questions included questions about:

(a) the workability of the project,
(b) the suitability of the presentation,
(c) the quality of interactions,
(d) participant enjoyment,
(e) effects on professional attitude,
(f) effects on professional behavior.

Such questions are most pertinent for the project staff who want both formative evaluation:

(a) to change the content and structure of the project,
(b) to adjust the emphases,
(c) to improve the presentations,
(d) to enhance the interactions,
(e) to provide more teacher support;

and also summative evaluation:

(a) to decide whether it is worth replication,
(b) to guage the potential long-term effects,
(c) to inform future efforts of this kind.

Check Sheets. Ray notes that information relevant to the evaluation questions could be sought by means of questionnaires or interviews. Questionnaires allow more anonymity and are cheaper for large numbers of respondents but allow only a limited coverage of topics. Interviews encourage more extensive expression of opinion and are more suitable for small numbers of respondents. When large scale statistical analysis is expected, questionnaires are almost always preferable. Ray decides to use both, a few questions for everyone to answer and some informal interviewing for probing some of the more complex questions. He considers each as possibilities:

(1) Preparatory Check Sheet -- to be given preferably prior to the first meeting, but otherwise at the beginning of the first meeting, to check on the characteristics of the participants and their expectations of the project. the information would be used by the project directors to check whether the program is on target and to make any desirable modifications to make it more suited to the participants.

(2) Saturday Session Check Sheet -- to be given at the beginning of each Saturday Session to check on the perceptions of the previous session by the participants; the information would be used by the project directors to focus attention on desirable adjustments in the content and presentation of the sessions and to monitor some aspects of their impact on the participants.

(3) After-School Session Check Sheet -- to be given at the beginning of each after-school session to check on the perceptions of the previous session by the participants; the informatin would be used by the project directors and the session organizers in considering how to provide the most appropriate encouragement and help to teachers for incorporating environmental issues into the normal curriculum.

(4) Follow-up Interview Schedule -- to be used towards the end of the year to discover whether there has been or is likely to be any effect by the program on the professional behavior of the participants; the information would be most pertinent to the final report on the project and to the planning of similar programs in the future.

Ray tells the Director that where any of this information is used formatively, there ought to be discussion of its meaning and significance at least among the project directors and session leaders, and preferably too among the participants, before any decisions on program modification are made. Such disucssions might suggest the need for

further information and changes in the evaluation procedures. Discussion itself may produce further insight and understanding of the program.

In order to prepare the questionnaire and interview data for such discussion Ray expects to summarize the data and to provide a brief interpretation. There are many ways to do this. Ray finds that it is important to the Director to have a written report but to discuss it informally at a Board meeting and elsewhere.

Although the inservice training has been going on several months Ray asks the participants to complete his PREPARATORY CHECK SHEET as they would have at the first session. It is shown on the next page.

PREPARATORY CHECK SHEET

Date: _____

This checkup is intended to help project personnel plan the project to take account of your expectations and needs. If you think it asks the wrong questions or you want to add more comments, please feel free to use the back of the sheet to say so.

1. Name: _____
2. School: _____
3. Grade Levels Currently Taught: _____
4. Subject Specialization (if any): _____
5. Special Responsibilities (if any): _____
   _____
6. Number of Years of Teaching Experience: _____
7. What topics (if any) relating to the environment have you studied extensively? _____
   _____
8. What special areas of expertise (if any) do you have in such topics? _____
9. What kinds of experience have you had related to environmental issues? _____
   _____
10. What kinds of environmental concepts (if any) have you recently taught? _____
    _____
11. What is you most important reason for participating in this project? _____
    _____
12. What special concepts and/or skills do you hope to learn from this project? _____
    _____

Ray wants to get some information from the participants while a session is still fresh in their minds. Realizing that not much time should be taken from discussion, and in order to plot responses from session to sessionm that some of the same questions should be used each session, he shortens and combines the Saturday and After-School instruments into the SINGLE SESSION CHECK SHEET. He decides against anonymity (realizing that asking respondents to identify themselves will prompt a few to respond in a way that reflects well on themselves) but he wants to relate these check sheet responses to participant characteristics obtained on the PREPARATORY SHEET.

Ray administers the sheets himself and reminds the participants that they are under no obligation to respond, but that it is an important favor to him if they do, and the information may make future sessions better.

The testing goes well. As usual a few respondents find the scale terms ambiguous or overly simplistic and write marginal comments. The comments do not indicate hostility as much as an inability to say in the scaling medium what they feel.

But Ray had attended those sessions and he was disappointed because the generality of the items, as with most attitude scales, did not deal directly with the topics and incidents of importance. He reread the opening chapter of Shaw and Wright's book, then decided to prepare an end-of-term scaling sheet that did deal more directly with what happened in the sessions. He titled this scale, A SUMMARY OF OPINIONS ON EIPIP.

SINGLE SESSION CHECK SHEET

Name:_____ Date:_____

The following questions are intended to obtain a quick summary of your impressions of the last session.

Please place a check mark (X) to represent your opinion along each scale.

1. How important was the topic for you?

extremely unimportant	neutral	extremely important

2. How helpful was the session to a teacher trying to teach more about the environment?

extremely unhelpful	somewhat helpful somewhat unhelpful	extremely helpful

3. How interesting was the session?

extremely boring	neither, or some of both	extremely interesting

4. If the session were repeated, how would you want to see it changed?

_____

_____

_____

_____

5. Have you any other comments, criticisms, suggestions?

_____

_____

_____

A SUMMARY OF OPINIONS ON EIPIP

Your Name _____

To indicate your opinions of the EIPIP project please mark an X at the appropriate place on each scale.

1. Was there enough opportunity for discussion
   (a) at the Saturday sessions?
   (b) at the after-school sessions?

   much too little | about right | much too much

2. Were discussions better because participants came from different school districts?

   much better | no different | much worse

3. Are you now more aware of environmental issues in your daily life than you were before EIPEP?

   not at all | some | very much

4. Was the project valuable to you personally?

   not at all | some | very much

5. Did the Superintendents dominate discussions?

   not at all | some | very much

6. Has your EIPIP participation led you to discuss environmental issues with non-participating educators?

   never | some | many times

7. Was the EIPIP discussion of mass transit and new expressways valuable to you?

   not at all | some | very much

8. Why was there no more discussion on the Tellico Dam issue in your group? (Check more than one if your wish)
   ____ (a) too boring
   ____ (b) still too sensitive
   ____ (c) (other)_____

Please indicate how relevant each of the following topics (from the Saturday sessions) were, in your mind, to the use of local environmental issues in teaching.

0 = almost unrelated
1 = a little related
2 = fairly well related
3 = extremely related

___9. Describing and monitoring the ecosystem
___10. Population pressures on the environment
___11. Energy use and energy sources
___12. Domestic and industrial waste disposal
___13. Food production and distribution
___14. land use policies
___15. The earth's natural resources
___16. Water management
___17. Pesticides
___18. Endangered species

19. What did you like most about EIPIP?

20. What did you dislike most about EIPIP?

Ray administered this scale and showed the results to the Executive Director. They found several things to puzzle about, particularly the reserve the teachers had about being identified with environmental advocacy. He asked Ray if he could find out more about it. Ray called Claire Brown at CIRCE (217 333-3770), knowing she is a specialist in program evaluation who had done a case study of LTVEC. Claire suggested that he might try an attitude sclae developed by Graham Maxwell and Bob Stake, a scale called the RELS SELF-ASSESSMENT SCALE. (A copy is included.) No technical information was available for this scale, but Ray felt that he could get a better picture of how the participants now feel about a commitment to environmentalism.

Ray wished he had administered the form as a pretest as well as a post-test. This would have given him a gain score for each participant, and he could have tested the statistical significance of the gain on each item. He was aware that gain scores are much less reliable than the scale scores.

The median score for most of the knowledge items on the RELS SELF ASSESSMENT SCALE indicated that the participants felt they knew more than "a small amount" but less than "a large amount" about various information and issues. Only 2 or 3 participants indicated a strongly activist stance, and most were optimistic about the benefits of collective inquiry and curricular attention to environmental problems.

Ray did not do any hypothesis testing of the statistics because he was interested in describing this particular group rather than drawing inferences to some hypothetical population.

Summary. Ron Szoke made a rough summary of data from each of the four opinionnaires and spent a couple of hours discussing them with the Director. They went over each of the original 17 questions, noting no data on many of them but concluding that there were good answers to many questions about participant interest, conviction, and likelihood of taking further action. He asked Ron to make a brief oral presentation to the Board, which provoked a lively discussion for almost an hour one evening.

---------- RELS SELF-ASSESSMENT SCHEDULE ----------

Please indicate the amount of each characteristic or value true for you.

0 = None or almost none 1 = A small amount 3 = A large amount

(Let's let 6 = the amount for a Ralph Nader or Albert Einstein or the most extreme person on any particular scale)

Write the appropriate scale value (0,1,2,3,4,5, or 6) for you in the space for each item.

____ 1. Your knowledge of general environmental issues.

____ 2. Your knowledge of environmental issues of this region.

____ 3. Your knowledge of the ecology of this region.

____ 4. Your knowledge of agencies for environmental control.

____ 5. Your understanding of the interaction of environment, energy, and economics.

____ 6. Your understanding of social and technical obstacles to environmental control.

____ 7. Your interest in working for environmental protection and improvement.

____ 8. Your sense of urgency about environmental problems.

____ 9. Your sense of despair about resolving environmental problems.

____ 10. The importance you attach to collective inquiry for resolving environmental issues.

____ 11. The possibility of resolving these issues by community discussion and debate.

____ 12. The need for aggressive protest against those causing environmental problems.

____ 13. Your ability to contribute to public discussion on environmental issues.

____ 14. Your frustration with people having little interest in environmental issues.

____ 15. Your knowledge of potential sources of environmental information.

____ 16. The possibility of adding environmental education to the school curriculum.

____ 17. The value of adding environmental education to the school curriculum.

____ 18. Your intention to work for adding environmental education to the curriculum.

____ 19. The need for calm and rational study of environmental problems.

____ 20. Your sense of commitment to environmental education.

Illustrative Application #3

AN EVALUATION STUDY OF POSSIBLE BIAS IN COMMITTEE WORK

Focus: Citizens League of Minneapolis-St. Paul

Evaluation studies are often undertaken because someone complains about the way things are working. One common complaint about environmental study groups is that they are biased in one way or another. It is expected that individual members of committees will have their convictions (biases) but that the committee as a whole will have a balanced approach and that its reports will not overly emphasize or ignore the viewpoint of any special interest.

From time to time critics of the Citizens League have charged it with "elitism" and with "under-representing women, minorities, and low income groups." With every committee report there are some who feel that recommendations went too far or not far enough, and thus were biased.

In Chapter II readers were informed of League management efforts to selectively recruit additional committee members to balance sides out. During orientation sessions invited speakers acquaint the committee with "the facts of the issues under consideration." Many valued resource persons represent special interests. The staff member serving the committee attempts to assure, not that bias will be avoided, but that all sides are heard.

Of course a well informed committee will never be entirely unbiased. And unanimity does not guarantee fairness. Experience has shown that toward the end of League study sessions committee members are usually largely in agreement over the key issues and some action to be taken. This is true no doubt partly because many of those seeing little hope for their point of view drop out. And those staying gravitate toward a compromise position, not necessarily free of bias but minimally controversial within the committee. There is no hope for a report entirely free of bias, but there are many ways of working toward minimization of bias. Some were just mentioned. Another way is for someone to evaluate the process to identify sources of bias. That is the sort of evaluation study described in this section.

Self Study. For purposes of making this evaluation manual realistic let us suppose that about four months into its work the Study Committee investigating the topic SELECTING SITES FOR UNDESIRABLE ENVIRONMENTAL USES has opted to conduct such an evaluation. Members were concerned about possible bias in their own deliberations--and had to wait several weeks anyway until further testimony was available.

The committee considered its resources and its concerns carefully and decided that the committee members themselves should do the evaluation. That is, they chose to do a "self-study." The resources would largely be those already at the committee's disposal and the information to be examined would largely be that already shared by the committee members. Still, members are aware that the process of self-study is frequently criticized for ignoring the values of outsiders--an allegation even more relevant for the study of controversial issues. Therefore, its self-study is planned to use both internal and external procedures.

The committee does not intend to study Citizens League operations in general but feels that study of its own operations will be useful to other committees and to the League's Board. Therefore it accepts the responsibility for making certain matters more explicit, detailed, and readable. And to protect the confidentiality of certain matters, if need be, by presenting some testimony anonymously and possibly with some obfuscation of personal circumstances.

The principal question is:

> What evidence is there that this committee does not give balanced attention to all sides of questions and that materials for the final report are inadequately considerate of certain important value positions?

The members of the committee decide they will break their work into four parts:

(1) Identification of both general value concerns and concerns specific to an individual issue

(2) Review of committee action by persons sympathetic to the individual value positions

(3) Compilation of instances of possible bias by committee members

(4) Analysis and presentation of evidence of bias

The committee divides itself into four subgroups for those four responsibilities, with the expectation that other people will help when needed. They decide that they will try to complete this evaluation within a month, using parts or all of the four evening meetings regularly scheduled for this evaluation work.

Value Position Acknowledgment. The first subgroup is scheduled to bring to the first meeting a list of value positions important in their work. They discuss the situation and decide to include three elements in their list:

(a) value-laden issues the committee is considering

(b) specific advocacy groups indicating concern about these issues

(c) general groups of people having a stake in the issues

They each agree to work on the list during the coming week so as to present a list for discussion and improvement at the first evaluation meeting. One member agrees to record, by phone, the suggestions of subgroup members and to present a list to the full committee at the first evaluation meeting.

At that meeting a list of 12 issues, 21 advocate groups, and 9 general groups is discussed, and added to. The committee becomes persuaded that they should try to work most with a smaller number of issues and groups, checking, though, to see that the substantial range is maintained. Their concern was not to identify all possible value positions, and thus all possible sources of bias, but to identify a small but diverse working set of value positions for thorough examination. The resulting list was turned over to the whole committee:

REPRESENTATIVE VALUE-LADEN ISSUES BEFORE THE COMMITTEE
(this list and the entire story are hypothetical)

(1) Location of Solid Waste Disposal
Impact on : taxpayers, nearby residents, land developers, junk dealers, citizens
Petitioners : Associated Refuse Haulers, municipalities, Save Our Cities, American Federation of Labor, individuals

(2) The Disposition of Nuclear Plant Wastes
Impact on : citizens, power and energy users, residents
Petitioners : Northern Electric Power Co., Minnesota Chamber of Commerce, Sierra Club, American Civil Liberties Union, individuals

(3) Industries Depending on Natural Water Cooling
Impact on : citizens, taxpayers, riverside residents and businesses, sports fishermen
Petitioners : Isaac Walton League, Northern Electric Power Co., Ten Thousand Lakes Tourist Association, Outdoorsmen Inc., Sierra Club, Inland Smelting, individuals, University of Minnesota

(4) Cattle Feeder Lots
Impact on : citizens, taxpayers, nearby residents, land developers, cattle feeders, meat packers
Petitioners : Swift & Co., General Foods, American Farm Bureau, municipalities, American Hereford Association, individuals

(5) Zoning for Power Boats, Snowmobiles and Other Noisy Sports Craft
Impact on : citizens, taxpayers, sportsmen, land developers, craft retailers
Petitioners : Outdoorsmen Inc., American Red Cross, Minnesota Chamber of Commerce, Sierra Club, individuals

This list was accompanied by a statement indicating that these issues and parties could be considered representative of committee involvements for the purpose of deciding whether or not certain rights, investments, and ideals might be under-represented in actions taken by the committee.

A second subgroup took the responsibility to arrange a review of committee action to date by persons sympathetic to individual value positions. After looking at the list presented by the first subgroup they decided to ask the following persons to meet at the regular meeting time of the second evaluation week:

(a) an executive of Northern Electric Power

(b) an officer of the Sierra Club

(c) a staff member of the Chamber of Commerce

(d) a Legal Aid attorney

(e) a resident living near a challenged industrial site

A League staff member (other than the one regularly assigned to this committee) agreed to assist this panel.

The primary materials for their review were the weekly minutes, noted in the previous chapter as "terse, cogent, complete, and about as interesting as minutes can get." Various attachments and exhibits came with the minutes. The charge to the "blue ribbon panel" was as follows:

> Please examine the materials of the committee studying SELECTING SITES FOR UNDESIRABLE ENVIRONMENTAL USES and note any evidence you might find or any suspicion you might have that the deliberations of the committee are incomplete or biased toward or against any point of view. Note any reasons that might occur to you why the committee might be so disposed.

The panel received their materials the day after the first evaluation meeting and agreed to look them over before gathering at the end of the week. The panel meeting would be used for discussion and further study. The panel's staff member agreed to have a summary of their findings available for distribution at the third evaluation meeting.

At the suggestion of one of the committee members the panel efforts were to follow a "goal-free evaluation" approach as advocated by Michael Scriven. Although they might be somewhat familiar with the goals of the League and this particular committee, and although they would

encounter some goal statements in the minutes, they were not encouraged to conduct their investigation with particular attention to those goals, but to look only for evidence of bias as it was meaningful to them.

Each member of the panel had comments to make about how special interests were being handled. There was some general agreement that the committee was responsive to advocates and petitioners, but noted that the choice of testimony and spokespeople was, as recognized, incomplete and somewhat arbitrary. Further they noted that the committee seemed to attend more to points of view presented personally, less to those well documented but not presented personally. Two panelists separately lamented particular inattentions, one to the concerns of the taxpayer and the other to the need for a vigorous and expanding economy for full employment and for solvency of the social security program. In other words, to the panel, committee biases seemed determined more by their own processes of inquiry than by prior convictions of the committee.

Self-evaluation Portfolios. The third subcommittee had the responsibility to compile instances of possible bias recognized by members of the committee. At the first session the subgroup discussed the use of self-evaluation portfolios. Following the work of Scheyer and Stake the plan would be for each member to keep some reminder (in a portfolio) of each instance when the question of bias arose but did not get immediate attention. Periodically the portfolios would be sorted out for setting agendas aimed at discussing the control of bias. Since this evaluation effort was to cover activities already past and was to result in a summative rather than an ongoing review, the subgroup asked each committee member to pretend that they had kept such a portfolio and to think of two or three items that might be in it, and to prepare a 3x5 card briefly explaining the instance of bias referred to. If it was an instance not known to most members of the committee the explanation might have to run a little longer. These 3x5 cards would be collected after some review and discussion at the second meeting and prepared by the League staff member for distribution at the third meeting.

To give the committee members more of an idea of the rationale and procedure of a self-evaluation using portfolios the staff assistant circulated a brief explanation, including the following quotations from Scheyer and Stake:

> The portfolio should include the judgments and opinions of various persons. . .

> On each issue there will be different value positions. Diverse testimonies reveal the different perceptions that people have about what is good and bad about a program. . .
>
> As different valuings become clearer, the need and the opportunity for compromise emerge. There will be times the staff should resist compromise, to hold out for what is precious to them; but usually some compromise should be found to respond to concern from all sides.

Again attention was drawn to the importance of recognizing implicit bias:

> . . .the portfolio is not merely a happenstance collection. Some entries are sought and others are created for a purpose. Some things need to be represented more than others. . .
>
> (This) portfolio should be a loose collection so that parts of it can be rearranged and differently displayed from time to time. The entries should reflect the program activities, its issues, its valuings, and its compromises.
>
> At any one time the portfolio keeper presents only a selected portrayal. The selection should be based upon issues, key issues, major concerns about running the program. Only a few issues should be pursued, but those in depth. . .
>
> Progressive focussing on the evidence in the portfolio sharpens the portrayal. A store of responsive, expressive questions about the program begins to emerge. The questions represent the issues. . .

At the third meeting the committee found the following among the many noteworthy items in the simulated portfolios:

> (a) an instance when the committee chairman urged that the deliberations put personal concerns ahead of social concerns and social concerns ahead of commercial concerns

(b) the decision of the committee not to consider parking garages and limited access highway location within its jurisdiction

(c) the unwillingness of the committee to hear the full testimony of a woman who wanted a clear distinction between nuisances and hazards

An Adversary Hearing. The fourth group decided it would like to have the evidence of bias brought to the committee as if it were a Congressional hearing, a program evaluation approach advocated by Owens, Wolf and others. At first there was opposition that would tend to politicize their sincere efforts--but a 1968 quotation from Congressman Bolling brought agreement, perhaps reluctant:

> I would hope that all of you who are disillusioned by the political process, who think you can escape the political process, would recognize that the framework of the society within which you work and plan is based on the political process.

Two attorneys serving on the committee were persuaded to summarize and present the evidence of bias and the refutation of that evidence, but only after it was agreed--as Wolf urges--that both sides would be pledged to the clarification of the situation rather than to the winning of the confrontation. In fact, each advocate agreed to commend his opponent when he felt that a point had been particularly well made.

The remaining members of the subgroup all decided to sit as hearing officers and the rest of the committee would sit as audience. A third attorney volunteered to serve as hearing officer or moderator. The principal testimony to be heard would be that submitted by the first three subgroups, the value positions list, the findings of the blue ribbon panel, and the items from the simulated portfolios. Each side was allowed any additional witnesses it needed but each of the two presentations, not including questions from the hearing officers and cross examination, was not to exceed 40 minutes. At the close of the hearing the entire committee would vote on the following motion:

> Because the actions of this committee are in need of more effective control of possible bias, a subcommittee will be

named to devise and initiate various remedies, subject to approval of the committee as a whole.

Interviews on Representation. One member of the committee continued to argue that bias could best be understood and controlled by increasing attention to the selection process. She urged that another evaluation study be undertaken, perhaps by another study group, with interview data from five groups:

(a) the League's Program Committee

(b) original and persisting members of the study group

(c) other persisting members added later

(d) study group members who dropped out

(e) consultants, petitioners and other resource persons

She proposed that the interviewers organize their questioning around these questions:

(a) What do you see as the basic purposes of the Citizens League?

(b) What do you see as the basic purposes of this study committee?

(c) What are your personal interests in the work of this study committee?

(d) What are the activities you have been most pleased with?

(e) What are the activities you have been most dismayed about?

(f) Do you feel that in any instance the committee has been unfair?

(g) How could the committee improve its representation of the various points of view and arrive at fair and effective solutions to problems?

She felt that the League should underwrite the costs of 20 days of interviewing plus analysis by an experienced and respected interviewer.

Other committee members commented informally that the one place to study bias of the committee would be to study the role of the staff member. The data are "filtered" by the keepers of the minutes. Many subjective choices are made.

An examination of the procedures by which committee members are selected, of the quality of services obtained from consultants, and of the operating procedures of the committee itself, is part of the responsibility of each study committee and the parent body. To some extent watchful eyes are ever watching: officers, newspaper people, citizens--friends and enemies. But is it enough to monitor the work informally? Often, yes; sometimes, no.

Quality Control of Network Information. Obviously, the combination of goal-free evaluation, external review, portfolios and an adversarial method of issue resolution places a high premium on the integrity and fairmindedness of study committee members. Even with the resources of the Citizens League and even with the services of excellent staff personnel, the resources of the individual member are greatly needed.

Research on the "transfer of knowledge" supports the quality-control steps emphasized here, including the careful balancing of committee membership, utilizing consultants, and gathering information about the study process. Menzel and Havelock testified to the importance of such steps. And a summary document on the factors involved in the successful transfer of innovations said:

> An outside person or group may perceive a need for new knowledge and also take on the responsibility of bringing the knowledge to the organization.

Menzel extended this premise into the realm of networking, a concept prominent in literature on environmental education and central to the case studies presented in this evaluation manual. Menzel said:

> Many new information networks have been established by organizations such as the Council of State Governments. . .

> By organizing conferences of publishing newsletters they bring together officials from all over the country and facilitate the exchange of ideas and knowledge, thus increasing the officials' awareness of the latest developments in their field.

In some important ways, the emerging networks are a reaction to traditional organizations which--at least in the eyes of critics--are not responding effectively to changing conditions.

In some places "networking" is no more than a buzz word. Strong words of caution about widespread dissemination of superficial and rationalistic are to be found in the Minneapolis-St. Paul material and other "information science" documents. Given the political-social-economic trade-offs in the fields of energy and environment today, warnings by an eminent scholar should be heeded. In 1975 Everett Rogers advised that:

> shedding the pro-innovation bias in diffusion research should lead to serious questioning of how 'good' the innovations being investigated really are, rather than assuming that they have considerable relative advantage over previous practice.

Awareness, Knowledge and Behavior. Beginning with the ESEA legislation of 1965, and accompanied by other activities initiated by the late President Johnson's plans for a "Great Society," we have received a host of reports on the processes and procedures by which awareness leads individuals and groups through a series of stages to an end-result manifest in practice. Usually, this alledged sequence moves from awareness--to acquisition of knowledge --to trials or comparisons of the new information with older forms--to adoption of the behavior or innovation. It has become increasingly evident that few, if any, social changes actually occur in this linear fashion. Lindbloom's famous critique of 1959, and his praise for "muddling through," has been followed by countless other criticisms of technological advocacies. Pages 7 and 8 of the Minnesota case study highlight events that fit poorly into linear models of change.

First : they cite the critical influence of visible problems--e.g., evidence of Dutch Elm Disease.

Second : events in Syracuse, New York, are hailed as testimony to the need for sustaining interest and support over time.

Third : while awareness may be acute, the necessary knowledge may not be available--or may be controlled by those with vested interests in keeping it out of the public domain. Also, the high degree of emotionalism surrounding environmental issues is already apparent.

Fourth : we live in a knowledge-rich society. Not all of it is equally valuable, but it all competes for our time and attention. The existence of such conditions reinforces constraints--latent and real--encompassed by the preceding trio.

At least one other matter looms over our efforts to cope with environmental issues in an "educational" format. In the form of a question it might be presented this way: "Will conflicts over the environment reinforce social class divisiveness?" This concern was expressed in our opening statements. Intervening passages have attempted to delineate certain evaluation measures designed to reduce the controversies surrounding environmental problems. But controversy will remain.

Traditional forms of evaluative and analytical skills may have to be supplemented by the tools of conflict resolution: negotiation, bargaining, compromise, conciliation, creative integration and synthesis, organization of coalitions, and techniques of individual and group persuasion. Burdens and responsibilities assumed by members of the Citizens League and its cadre of study committees seem almost overpowering. Yet they appear better equipped than most civic groups to confront the major challenges of our time. In fact, environmental struggles may offer the severest test of the final criterion employed by the Program Committee in its efforts to help League members decide on projects--namely, "Is the problem capable of being resolved by reasons based on fact, or are the emotional overtones, the tides of bias, too strong to permit reasoned analysis?"

Illustrative Application #4

AN EVALUATION OF STUDENT ACHIEVEMENT

Focus: Little Tennessee Valley Schools

Perhaps the most common type of formal evaluation of educational programs is the evaluation of student achievement. It is common to think that the quality of the teaching is manifest in the quality of student performance on tests. Actually, the major determinants of student performance are previous achievement and aptitude rather than teaching effectiveness, and our tests are too crude to give a good picture of what youngsters have learned. Still, achievement tests sometimes give us at least a rough idea of what the teaching has accomplished.

Unless the test is standardized and we are very familiar with usages of that test, the total score tells little about the attainment of the student. (And standardized tests are seldom closely related to the teaching.) Individual items may tell us important things. By answering correctly, does the student know this particular fact or relationship alone, or the surrounding complex of facts and relationships. We know that our items fail to tap many of a youngster's understandings, so that it is easy for scores to underestimate attainment. But it is easy for us to overgeneralize from a correct response. Yet, even that limited information can be valuable.

Teaching Environmentalism. Let us assume that four teachers attending the EIPIP inservice session decide to try out some environmental education materials in their own classes. They decide they will particularly try to understand the difficulties of changing course objectives under present school circumstances.

The teachers and administrators at the Saturday morning sessions frequently pondered the issue of how more environmental questions could be raised in school. They were sensitive to the fact that the public and the profession were pressing for less to be included in the curriculum, not more. Most were persuaded that the curriculum reform efforts of the 1960s had raised too high the expectations of what a teacher would teach. The watchword was "back to the basics." New courses and new content within the traditional courses had few advocates.

Yet they felt that the perplexing problems of energy and environment should not be left entirely to incidental learning. Television portrayed some things effectively, but the personal involvement needed for a real grasp of the social, political, economic and personal interrelationships was missing.

The best scholastic solution seemed to be to provide supplementary units to teachers who would decide, on an individual basis, when there was a need and an opportunity for teaching basic environmental understandings.

The four teachers who decided on some immediate try-outs are:

Frances Winters, social studies, Collingwood School
Rose Jackson, home economics, East Monroe High School
Forrest Hagerstrom, mathematics, East Monroe High
Shirley Webb, business education, Cherokee Unified

Each of the four picked out one course s/he was teaching and an environmental topic that seemed to fit:

Sociology	Energy
Marriage and Family . .	Population Growth
Practical Math.	Utility Bills
Consumer Problems. . .	Conventional vs Microwave Ovens

Shirley Webb indicated that in her Business Education course she wanted to introduce the topic of "demand for electric energy" but needed something like "the choice of ovens to purchase" as a practical point of entry.

These teachers were developing many of their ideas from materials published by the University of Tennessee Environment Center. Frances Winters found, for example, ideas in their "white book" for high school social studies on the following:

(1) Socioeconomic Problems and Energy
(2) Population Growth and Resource Consumption
(3) U.S. Dependence on Foreign Oil
(4) Energy Production and Waste
(5) Retail Merchants and Energy Conservation
(6) An Energy Conservation Campaign

Forrest Hagerstrom was in correspondence with Professor Robert Waller of Nothern Iowa University to obtain math exercises in an environmental education context.

Over a period of two months each teacher was able to spend at least three hours of class time on the environmental topics. At first they felt that this was too little to produce any measureable achievement, but they were curious about that, and they wanted to get a feel about handling it as a full teaching module. They decided to go ahead with some testing.

Rose Jackson had heard that criterion-referenced tests were superior to the usual norm-referenced tests for assessing performance on specific objectives. None of them really understood what that meant so they placed a call to the ERIC Clearinghouse on Tests and Measurements (609 921-9000). They were referred to several books but also were told that for constructing a few items for their classes it was not going to make any difference whether they wrote criterion referenced items emphasizing skills that all students were expected to master or whether they wrote norm referenced items that were intended to discriminate maximally between the students who had acquired the general skills and the students who had not.

Item Selection. They decided it would be interesting to present some of the same questions to all four classes, plus additional questions more pertinent to their special lessons. For the common questions they selected True-False questions from the University of Tennessee Environmental Center materials. The twelve items selected are shown on the next page. For assistance in constructing other items they referred to Gronlund's book.

After each teacher had administered the common and unique items to their class they got together to discuss the results. They concluded that the scores did, as usual, give them a pretty good rank-ordering of students from best achieving to poorest, and that more students missed several simple items than they had predicted. But they also knew of several students who had really gotten involved in the environmental questions, had read several relevant articles, yet had done poorly on the tests. Generally they were disappointed with what the test results told them, and felt it would have been more useful to have had a discussion with some of the students to find out what was understood and how the instruction could be improved.

T-F ITEMS CHOSEN BY EIPIP TEACHERS TO USE IN COMMON FOR TESTING ACHIEVEMENT

(1) The population of the United States doubles about every 46 years and the demand for electricity doubles about every 10 years.

(2) Widespread conversation of urban refuse into fuels could supply approximately 25 percent of our total annual energy consumption.

(3) If all coal from reserves in the U.S. were mined and made available, there would be enough to last us for several hundred years if used at the present rate of consumption.

(4) The cost of transporting coal can often equal the cost of mining.

(5) Oil is the cleanest burning of the fossil fuels and is, therefore, in great demand.

(6) The most significant variable affecting fuel consumption in an automobile is its weight.

(7) The best location for the thermostat is on the coldest wall.

(8) Fluorescent lights are less efficient than incandescent.

(9) The energy used to drive a car initially came from the sum via green plants.

(10) The heat lost through the house is primarily through the ceiling.

(11) In the Tennessee Valley region, the water heater accounts for about 50 percent of the electric bill.

(12) The electric range uses less electricity than the clothes dryer, window, air conditioner, and dishwasher combined.

Illustrative Application #5

ETHNOGRAPHIC EVALUATION OF A COMMUNITY-BASED PROGRAM

Focus: The Land Owners Organization

Consider the following description from the notebook of the LTVEC case study ethnographer:

"In a day of considerable government talk about advocacy and employment of the people, we see that in an indirect and painful way, TVA has empowered the people of the Little Tennessee Valley as they would not have been empowered otherwise. From experience with TVA and the Tellico Project, the people have learned about the importance of community and regional advocacy. They've learned, with TVA's good example, the meaning of the words from the popular country and western song, "The Gambler," so big in Tennessee this spring:

> You gotta know when to hold 'em
> Know when to fold 'em
> Know when to walk away
> Know when to run. . . .

"This is not to say that in the post-Tellico period Loudon, Blount, and Monroe counties resonate with community action. Still, there are a few indications of a new way of thinking about issues related to the Little Tennessee and the river valley, and surprisingly, of support for that activity from TVA.

"A good example of this more region-oriented, action-oriented approach, as well as TVA's new posture is seen in the Little Tennessee Land Owners Organization. Times were particularly bad in the days when people along the Little Tennessee were having their homes and land snatched rather ruthlessly from them, with token reimbursement made by TVA. Quite predictably, there evolved a loosely-knit very informal network of displaced and potentially displaced land owners--603 in all--neighbors before, now linked together even more closely by their common problem. Through the network flowed mutual support, and information such as which land TVA was appraising now, what was being offered, what suits were being filed, and so on. Of this group, five families refused to move at TVA's demand (and at this writing still have not), among them the Richies, the McCalls, and the Mosiers. The Davis family sold, but solicited the legal services of a special lawyer from Kentucky, and filed suit against TVA.

"In the fall of 1978, the new director of TVA, David Freeman, encouraged the structuring of this network into a more formal organization. According to Al Davis, current president of the Land Owners Organization, the organization has a public membership, elected officers, and meets twice monthly with two stated purposes:

(1) to work toward regaining the land for the original land owners.
(2) to work to protect the rights of the land owners.

The LOA formulates and states positions on issues such as the leasing of the land, now owned by TVA, and protection from poachers on the land. Position statements are written and submitted to TVA and TVA staff meet with LOA officers to discuss the issues and recommendations."

Let us imagine that the Land Owners Organization has submitted a proposal and received funding for a small grant from the Office of Environmental Education to achieve the following:

(1) To coordinate community-wide gathering and exchange of information related to land acquisition and usage along the Little Tennessee River.

(2) To conduct educational activities which inform present and past landowners of legal rights and responsibilities in the on-going River vs Reservoir dispute.

We have now created a situation similar to that of many OEE community education projects. Within a small community-action organization, a special project has been undertaken, a project primarily educational in intent, yet having a strong advocacy flavor. The educational activities, or the "curriculum," are not theoretical, not academic, not abstract; but are instead immediate and tied closely to people's deep concerns and carings--in this case, for their land.

Now let us consider evaluation possibilities for such a program. The evaluation situation is one which seems to encourage evaluators to shy away from measurement and to search for alternative, better-fitting modes of data collection and representation. They hope that such an evaluation would:

(a) allow for the study of open, changing systems and emergent problems;

(b) encourage the representation of multiple viewpoints and value perspectives;

(c) focus on program activities and issues rather than outcomes;

(d) provide a means of studying spontaneous events, situations, and crises;

(e) be sensitive to the context and setting.

Naturalistic Evaluation. One approach which seems to serve well in meeting most of these hopes is naturalistic evaluation, sometimes called ethnographic or qualitative evaluation. Ethnography is a research technique adaptable to program evaluation from anthropological research methodology where it has long been applied in the study of cultural groups. Three descriptors of ethnography are significant in understanding its utility in evaluation. It is:

(a) Field-based--Data collection is conducted in which processes being evaluated occur.

(b) Observational--A primary mode of data collection is direct observation of program processes and events by the evaluator or indirectly through interviews, document analysis, photography, etc.

(c) Passive--In gathering data, the evaluator intrudes as little as possible upon the program activity. (For example, instead of administering tests to program participants or having them respond to simulated problems, the researcher observes the behavior of participants as they go about their usual program activities in usual program contexts.)

Case Study Research. One application of naturalistic evaluation techniques is in case study research. The case study approach to evaluation typically applies ehtnographic research techniques to the study of a single instance or case--or, for example, to the study of a small-scale program such as the Land Owners Organization.

To understand how case study research is conducted, let us first imagine shadowing an ethnographer through the various stages of a case study of the Land Owners Organization.

It is late in the fiscal year. Officers of the Land Owners Organization begin to plan toward a final report which soon must be presented to the funding agency of their community education grant. They decide to commission a case study evaluation of the Land Owners Organization program and operations, especially to focus upon its community education dimension. The evaluator, contracted from the nearly university, grumbles a bit at the late date and the organization's limited evaluation budget, but agrees to attempt a fifteen day, on-site case study of the organization and its educational efforts, as requested.

Through telephone and mail exchanges prior to the site visit, formal arrangements have been made between the evaluator and the program staff which specify cost, obligation, access, issues of confidentiality, etc., for the case study.

The evaluator arrives on-site a day early, and utilizes the first afternoon and evening becoming oriented to the cultural and environmental context. She takes a leisurely drive along the Little Tennessee River, allows time to stop for viewing the valley, recently cleared for reservoir flooding. She locates a local newspaper to read while having an evening meal at a local diner. Each of these experiences contributes to the development of a general feel for and understanding of the environmental milieu in which she will be working.

The first official contact of the study is with Al Davis, President of the Land Owners Organization. Excerpts from that interview follow:

> We have now 140 members . . .There are 683 heads of households (landowners along Little Tennessee). Some didn't have to move. Only about 310 had to move. We have five elected officers.

Some people have been hot for the land for selfish reasons. . . Only about ten percent are for it (the reservoir) . . .

Waggoner (previous Director of TVA) wouldn't have even talked to you. Now with Freeman (current Director of TVA) it's a different ballgame . . .

The Board of Directors meets every two weeks. We discuss problems--anything related to landowners . . . recently, leasing, and the way leases are written, and about lowering the price of rent. We asked TVA to rent to former landowners first. We asked for protection from poachers on our leased land. Used to, you couldn't legally keep people off.

We've met with Freeman twice. In most cases they like us to meet with staff before the TVA Board . . . They changed the lease, but not suitably.

Also, we may be into other things. We want TVA to let the landowners have their land back. At this point, they can't let us have it. As with the Cross-Barge Canal in Florida, the people have not been able to get their land back. A judge ruled that in three years if the project is incomplete, the land will be sold back at the original price.

During this rather lengthy and intensive session, the researcher accomplishes several important tasks:

She experiences a first exposure to the its history, its purposes, its activities, its problems and concerns.

She identifies and gains information for contacting other informants: other Land Owners Organization officers' families who would not move from the valley; several members who resist the reservoir plan; several members who ardently support the reservoir plan; TVA officials; lawyers and other "experts" who have been brought in to give special presentations to the group and to local community audiences; key community figures.

She discovers the location and access routes to important records and documents: The Land Owners Organization Charter; the proposal for the Land Owners Organization community education grant; maps; and documents showing land divisions and ownership in the valley; minutes from the Land Owners Organization meetings; census information for the area.

She determines special events and activities which she will want to observe: the Land Owners Organization monthly meeting; special education presentations being offered during the fifteen-day period.

Our case study evaluator is still not quite ready to begin to gather data formally. At this point the evaluator must determine some structure for organizing her data collection. Actually, she usually prefers to use an issues-based format, and chooses to do so in her study of Land Owners Organization as well. Based on many factors--sensitivity to purpose and goals, awareness of recent critical events and program process, current priority concerns of staff (as described by Al Davis), evaluation audiences, and so on--she arrives at the following list of issue-questions at least for starters:

*What effect have efforts of the Land Owners Organization had upon TVA, its policies, and its decisions?

*Has TVA exploited this organization for political purposes, or diverted the organization from its organization from its original committments and goals as an informal network?

*How is the organization affected by community tendency to maintain the status quo?

*Is the River vs Reservoir issue too sensitive to serve as the focus of an effective community education program?

*Have organization efforts been dominated by extremists on either side of the issues?

*Is there an ethical conflict between the land-owners' deep desire to recover their land and OEE policy against political advocacy as part of project activity?

She now lays out all of the possible data sources along with the issues to be investigated, weighs these against constraints, and derives a feasible study plan. Once data collection begins, we see our evaluator coming and going at a feverish pace. She has set herself a rigorous schedule, perhaps overly full with interviews here and there over the entire county and as far away as Knoxville, filling the days, evening sessions and meetings, and still needing time to make data entries, to allow for spontaneous observations and experiences, and most importantly to maintain conceptual direction of the study.

The first phases of data collection seem chaotic, with the ethnographer experiencing considerable information overload and disequilibrium. Slowly, however, the portrayal

begins to find its story line, to take recognizable shape and form both in the data and in the mind of the evaluator. Perhaps the educational effort within Land Owners Organization is merging beautifully with its political action thrust, with landowners becoming more involved and effective in their voting and action related to land use issues. On the other hand, perhaps the case study bears a story of misdirected educational empowerment, with renters along the River becoming the real, but forgotten, displaced persons; with Land Owner Organization membership consisting mostly of absentee urban landowners who participate in the organization for political and economic reasons. And so on . . .

So the ethnographer winnows the data, saving that which seems most salient, and weaving it into the fabric of a case study story. This process begins on-site, and continues on beyond the data-collection period.

The case study is synthesized into a final report which is then circulated to appropriate audiences. Ideally, the ethnographer is able to return to the site to review the outcomes of the study with staff and possible membership of the Land Owners Organization.

Perhaps our hypothetical evaluator had consulted and adapted for her own situation a set of guidelines such as on the following page:

Stake 6-23

One Set of Guidelines for Doing a Field-Observation Case Study

I. ANTICIPATION
- Review or discover what is expected at the outset in the way of a case study.
- Consider the questions, hypotheses, or issues already raised.
- Read some of the case study literature, both methodological and exemplary.
- Look for one or more studies possibly to use as a model.
- Identify the "case." Was it prescribed, selected to represent, or mere convenience?
- Define the boundaries of the case (or cases), as they appear in advance.
- Anticipate key problems, events, attributes, spaces, persons, vital signs.
- Consider possible audiences for preliminary and final reportings.
- Form initial plan of action, including definition of role of observer on site.

II FIRST VISIT (?)
- Arrange preliminary access, negotiate plan of action, arrange regular access.
- Write a formal agreement indicating obligations for observer and for host.
- Refine access rules with people involved, including union, PTA, officials, etc.
- Discuss real or potential costs to hosts, including opportunity costs.
- Discuss arrangements for maintaining confidentiality of data, sources, reports.
- Discuss need for persons to review drafts to validate observations, descriptions.
- Discuss publicity to be given during and following the study.
- Identify information and services, if any, to be offered hosts.
- Revise plan of action, observer's role, case boundaries, issues, as needed.

III. FURTHER PREPARATION FOR OBSERVATION
- Make preliminary observations of activities. Use other sites for try-outs?
- Allocate resources to alternative spaces, persons, methods, issues, phases, etc.
- Identify informants and sources of particular data.
- Select or develop instruments or standardized procedures, if any.
- Work out record-keeping system, files, tapes; coding system; protected storage.
- Rework priorities for attributes, problems, events, audiences, etc.

IV. FURTHER DEVELOPMENT OF CONCEPTUALIZATION
- Reconsider issues or other theoretical structure to guide the data gathering.
- Learn what audience members know, what they want to come to understand.
- Sketch plans for final report and dissemination of findings.
- Identify the possible "multiple realities," how people see things differently.
- Allocate attention to different viewpoints, conceptualizations.

V. GATHER DATA, VALIDATE DATA
- Make observations, interview, debrief informants, gather logs, use surveys, etc.
- Keep records of inquiry arrangements and activities.
- Select vignettes, special testimonies, illustrations.
- Classify raw data; begin interpretations.
- Redefine issues, case boundaries; renegotiate arrangements with hosts; as needed.
- Gather additional data, replicating or triangulating, to validate key observations.

VI. ANALYSIS OF DATA
- Review raw data under various possible interpretations.
- Search for patterns of data, whether or not indicated by the issues.
- Seek linkages between program arrangements, activities, and outcomes
- Draw tentative conclusions, organize according to issues, organize final report.
- Review data, gather new data, deliberately seek disconfirmation of findings.

VII. PROVIDING AUDIENCE OPPORTUNITY FOR UNDERSTANDING
- Describe extensively the setting within which the activity occurred.
- Consider the report as a story; look for ways in which the story is incomplete.
- Draft reports and produce materials for audience use.
- Try them out on representative members of audience groups.
- Help reader discern typicallity and relevance of situation as base for genralization.
- Describe methods of investigation and theoretical constructs used.
- Revise and disseminate reports and materials. Talk to people.

There are always too many ways to spend case study research time. It should help delimit the study and allocate time to decide whether it is really the case or some problems or issues occurring there and elsewhere that is the target of the study. If that particular case is the target of interest, one should consider how to deal with issues vital to the case but of little interest to the investigator.

Those classrooms and other schools spaces are the living spaces of people. Most, by definition, are public, but private by common law. Observation studies can be an unwarranted intrusion into the privacy of people. Seldom should the researcher presume to be the guardian of rationality, efficiency, and morality.

The reader seeking understanding of the case or the issues is usually not very interested in the methods of the study, perhaps not sufficiently so. The researcher has an obligation to indicate the methods used and the choices made, but these statements should not be so placed as to obstruct the reader's effort to understand the substantive findings.

The reader who wants to challenge the findings is likely to say that the case study was subjective, arbitrary, non-representative, and inconclusive. Which is probably true, but the study is not thus invalidated. The counter to these charges, if strong efforts to produce a valid study have occurred, is a good description of the methodological and conceptual reasoning that took place, including efforts at verification and disconfirmation.

The researcher should reflect upon his/her own commitments and biases. No observation or case study is free of bias, nor is that a critical aspiration--but the validity of the study is usually increased if the reader can appreciate the bias. Two ways to do that are to describe nationwide problems as they valued personally by the researcher and to describe in the reports some local situations that are relatively common--so the reader can see how the record is influenced by the researcher's commitments and biases.

The Project Historian. The project historian is a variation of case study evaluator. Such a person can play a special evaluation role. She may utilize ethnographic research procedures, incorporating them into the on-going process evaluation of a program.

The project historian observes, interviews, or searches the documents, and generally immerses herself into the stream of events of a program. However, the evaluation process extends the full duration of the program process, and interacts with it intermittently. In addition to evaluating the program through ethnographic inquiry methods, the project historian has the added responsibility of providing on-going feedback so that the evaluation results can have immediate utility in program planning, decision-making, and direction.

The Land Owners Organization might choose to engage a project historian in the evaluation of their program. Usually the evaluator would be a volunteer from the community, a retired member perhaps or a college faculty member. Such a evaluation would entail intermittent visits to the site for observation, interviews, and review of program documentation. The evaluator might require time at Board Meetings for the exchange of information on the progress, problems, etc., of the project.

Cautions about Naturalistic Evaluation. At least three special problems are associated with naturalistic evaluation:

(1) These studies are expensive. They often involve evaluators for seemingly inordinate durations and at great time and financial expense to programs.

(2) Such studies require evaluators with special orientation toward and preference for naturalistic (as opposed to experimental) studies, as well as some experience in field-based research. Such evaluators are in a minority across the field of evaluation, and can be difficult for a program to locate.

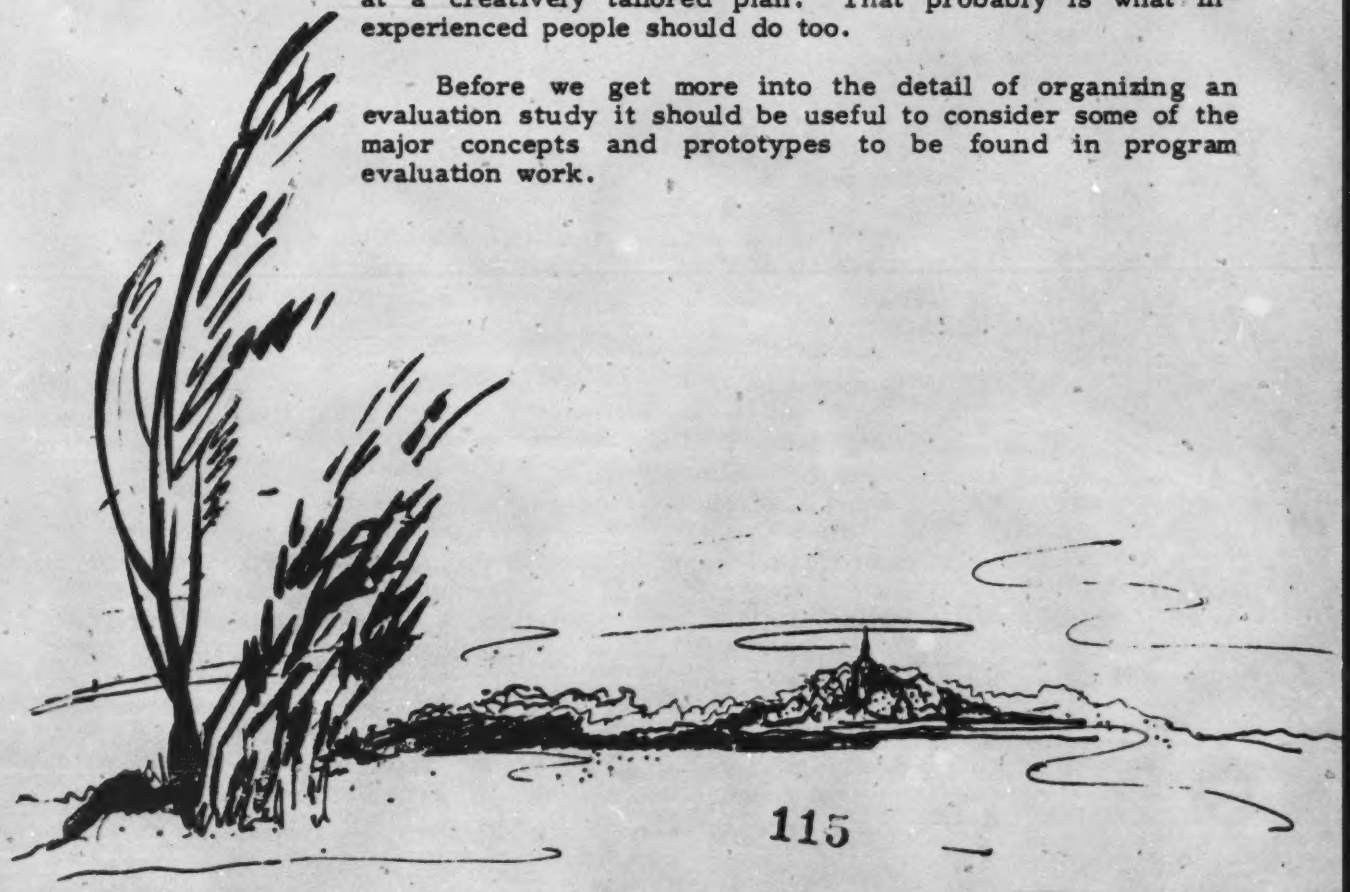
(3) Results of naturalistic studies are inappropriate for many audiences and evaluation purposes. They often appear overly subjective, arbitrary, and non-representative. They are unresponsive to audiences with a penchant for experimentally-derived data. Results of naturalistic studies are often slow in coming, and once in hand, of great length, detail, and complexity. For this reason, they fail to meet evaluation needs which demand immediate, concise, and conclusive results.

ORGANIZING AN EVALUATION STUDY

We have used half the space of this Program Evaluation Manual telling you about LTVEC and the Citizens League because we feel that evaluation studies should be rooted in their programs, sensitive to the local context, and structured upon the issues that concern people near at hand. It is natural for persons charged with difficult evaluation responsibilities to look for research designs and evaluation models tested, validated, and made ready for general use. Such designs and models exist. They have been proposed by many specialists. But actual usage has shown them lacking, needing adaptation to local conditions and extension to otherwise overlooked fundamentals of the program. It can be shown that the proposers of these designs, when carrying out evaluation studies themselves, do not stick closely to their prototypic designs but draw eclectically from a number of different ideals.

What the successful evaluation specialist appears to do is to think simultaneously of the uniqueness of this program and potential modification of designs that work best for him or her. Working back and forth in some kind of dialectic, attending to both the real and the ideal, drawing other people into the planning, the experienced evaluation arrives at a creatively tailored plan. That probably is what inexperienced people should do too.

Before we get more into the detail of organizing an evaluation study it should be useful to consider some of the major concepts and prototypes to be found in program evaluation work.



BASIC IDEAS OF EVALUATION OF EDUCATIONAL PROGRAMS

A program, like a human being, is a complex creature. There are so many things about it that could be studied. Often the expectation is that evaluation attention will be divided up among lots of features, but that seldom works. To get a successful evaluation study you usually have to focus attention on just a few things. You have to delimit the study. One common way to delimit the study is to decide whether to focus on the workings, the process of the program, or its output, its impact. Those studies that aim to examine the relationship between process and product do so by only considering a very limited view of each, and then usually giving attention to what seems to explain a single dimension of output.

Process versus Impact. It seems so obvious that any good evaluation study would want to examine both the process and impact of a program. Well designed studies do attend to both, but almost always one dominates the other. It may be that the evaluation activities for studying process and impact are so dissimilar--and each so demanding of resources--that evaluation designs almost always emphasize one more than the other.

In the first chapter we presented a letter from a regional program official expressing a need for impact data. As the distant administrator thinks about the program a simple decision model often is apparent--if impact is high enough and costs are low enough, decisions should be made to sustain or expand the program. Those decisions do not require much knowledge of program operation, so the regional official may stress the need for impact over process knowledge.

Of course it is not only distant administrators who say that evaluation should focus on program impact. Taxpayers, developers of new programs, supporters and critics alike are quick to ask for evidence of accomplishment. It is common in Western technological countries to think that a collective effort, a public enterprise, should produce something. So evaluators are urged to look for impact.

But somehow there is a general inability of educational researchers to satisfy this natural and apparently reasonable demand. Why don't all program evaluation designs concentrate on impact? There are several reasons:

(1) For all the technical sophistication of eduational testing the results from the existing standardized tests are usually too crude and not sufficiently on target. Real attitude change, understandings, political conviction, and group effectiveness--all important program impacts--are different to measure meaningfully. And to develop more refined tests is a very expensive task.

(2) Standards of success differ from one place to another so that what will be considered successful impact here will not be considered successful elsewhere.

(3) Many effects are expected to develop slowly, providing at the time of evaluation very little indication of what will come later. And when that later measurement comes there may be a number of causes to which to attribute the results.

(4) The cause and effect relationships between process and impact are too complex, too situational. Even when we know what the effects are we may have little idea about what to do about it. Data on effects just do not reveal much about what caused success or failure, and even less about what changes would increase the success and diminish the failure.

So the regional official who wrote the letter may succeed in getting that evaluation design more oriented to impact, but may be disappointed with the degree to which impact is actually measured and with what can be done once impact is measured.

We should acknowledge that the letter was a response to an evaluation design which was heavily oriented to issues and processes. Its author might have been just as quick to seek correction for a design exclusively attentive to impact.

In a few pages we will present a summary of the major approaches to program evaluation. The primary basis we use for classification is the distinction between process-oriented and impact-oriented designs.

Preordinate versus Responsive Designing. The distinction between process and impact is made as to what the evaluation study is looking at. The primary distinction as to how the evaluation is carried out perhaps is that between a preordinate approach and a responsive approach.

Studies differ as to how much the inquiry is based on preconceived questions or hypotheses and how much on issues encountered in the field during the study. These are sometimes referred to as etic issues and emic issues, respectively.

The responsive study is developed slowly, using Malcolm Parlett and David Hamilton's concept of progressive focussing, basing further inquiry on observation of activities and the emergent concerns of participants in those activities.

Preordinate studies are more oriented to objectives, hypotheses and prior expectations, usually expressed in formal statements. Preordinate evaluators know what they are looking for and design the study to find it.

In a preordinate study a relatively large portion of resources is spent getting objectives specified and developing instruments, and sometimes in setting up control groups and randomly sampling. In a responsive study a relatively large part of the resource pool is spent preparing and placing observers and interviewers in the field.

Wholistic versus Analytic Perceptions. Studies differ also as to how much they treat the program as a totality, recognizing conceptual boundaries common to non-technical audiences. The more common social-science research approach is to concentrate on a small number of components or properties. A case study is often used to preserve the complexity of the program as a whole. Analysis (often called multivariate analysis) is undertaken to study the relationships among properties.

Formative versus Summative Commitments. The most enduring distinction made by Michael Scriven in his respected paper "The Methodology of Evaluation" is that between the formative and the summative. He was particularly distressed by the over-attention evaluative researchers seemed to be giving to the concerns of developers of programs (formative concerns) and the lack of attention to the concerns of consumers such as students, parents and other citizens (summative concerns).

The temporal distinction between evaluation during program development and that after completion is usually emphasized, but the question of whose concerns will be

addressed is probably more important in considering whether to organize a formative or summative evaluation study.

Formal versus Informal Inquiry. This distinction was made earlier. Informal evaluation is a universal and abiding human act, scarcely separable from thinking and feeling. Formal evaluation is blue-printed, operationally defined--less intuitional, covert, and personal. It is needed when the results are to be communicated elsewhere.

Consensus versus Pluralistic Value Sets. Gene Glass and Fred Ellett based a recent taxonomy of evaluation designs mainly on the distinction between those which tried to find the common valuing across times, places, and people, and those which tried to preserve the differences in valuing. The important emphasis here is more on the criteria (What is the definition of impact and cost?) more than on standards (At what level shall we say that the program is successful?)

Case Particular Knowledge versus Generalizations. Perhaps the thing that most differentiates between what we might call evaluative research and program evaluation is the ultimate purpose of inquiry. The distinction here is similar to that made by Lee Cronbach and Pat Suppes in distinguishing between decision-oriented inquiry (for the practitioner mostly) and conclusion-oriented inquiry (for the theorist mostly).

Some studies are set up to examine the program as a fixed and ultimate target, others to examine the program as a representative of other programs. Most research is expected to generalize in some ways: over time, over settings, or over subject matters, for example. The inquiry may aim at the worth of the particular program or at the worth of the general approach. Studies are conceived very differently in this regard, both by investigators and by audiences--a large misunderstanding is possible.

The more the study is expected to be a basis for generalization the more the need for controls, controlled variation, and careful description of uncontrolled variation. Description is needed of the changes in time and place and persons, and in many of the ways in which generalization is to be directed. Case studies may be undertaken either for particularized knowledge or for generalization.

Descriptive versus Judgmental Interpretations. As indicated in the first chapter, all evaluation is judgmental. Studies differ however on the degree to which the research includes and even emphasizes his/her own judgment and the degree to which readers are left to (and assisted in) making their own judgments.

Many evaluation specialists coming from a social science background define the evaluation task largely as one of providing information, with an emphasis on objective data and de-emphasis on subjective data. Those with humanities background tend to reverse the emphasis.

There are really two separate questions raised here, whether or not subjective data (testimonies, preferences, etc.) will be used, and whether or not the judgments formed by the evaluation team will be reported.

With this dichotomy, and each of the others above, we have a continuum. Mixtures are not only possible, they are the rule. Studies at either extreme are seldom found. The extremes are cited here to identify dimensions or characteristics by which a new study can be conceptualized.

A CLASSIFICATION OF PROGRAM EVALUATION APPROACHES

Certain ways of carrying out evaluation studies have become commonplace. The table on the next page presents four major categories of evaluation studies and some special cases within each. These prototypes should aid in the discussion of the alternatives available to program staff considering possible ways to carry out an evaluation study.

In the previous chapter we examined five evaluation situations. Two of them were directed toward program impact, one of those to the attitudes of teachers in a continuing education situation, the other to knowledge attainment of students. What is common to these and to most impact study situations is that people identify one or a small number of "outcome variables" and organize data gathering around them. Other examples of program outcome variables are: attendance at meetings, referendum votes, newspaper coverage, familiarity with the environmental problem, and donations.

We take note of two kinds of <u>impact</u> designs:

a. Gains in performance over time

b. Regression of background and process variables on outcomes

The approach usually suggested by measurement specialists and educational psychologists is "testing to measure student gain." It relies on instruments developed or selected to match specifications of objectives. In the special case of the Goal-Free approach the specification of objectives may be informal and made by the evaluators rather than the program staff. This study is likely to give the most accurate indication of student (or other beneficiary) impact, but least likely to indicate what caused it or how to improve upon it.

Those studies designed primarily to explain the impact of the program are Regression Analysis studies. The term is a generic term, not limited to those where a formal statistical test of regression effects is made. Any effort to study the covariation or contingency of process with outcome can be classified here. The strength of the approach lies in its accuracy and control, the weakness in its assumption that the things worth attention will show up having a variation of scores available for analysis.

A CLASSIFICATION OF PROGRAM EVALUATION APPROACHES

EMPHASIS ON IMPACT

EMPHASIS ON PROCESS

		A leading advocate	An exemplary study	Advantages & Disadvantages
PERFORMANCE GAINS ANALYSIS		... Ralph Tyler ...		
AIM: Assess impact of program with regard to prespecified criteria	Special Cases: Discrepancy Evaluation	Malcolm Provus	Torsten Husen	Keeps attention on the "bottom line," invests in performance testing; Oversimplifies educational aims, ignores ways to improve process
	Field Experiments	Robert Boruch	Dick Anderson	
	Goal-Free Evaluation	Michael Scriven	House/Hogben	
REGRESSION ANALYSIS		... Lee Cronbach ...		
AIM: Find significant covariates (background or process) of outcome variables	Special Cases: Survey Sampling	Hubert Blalock	Daniel Weiler	Some control of conditions by researcher using robust sampling plans, analyses; De-emphasis on educational issues, particularly local circumstances
	Cost-Benefit Study	Henry Levin	Fielden/Pearson	
	Explanatory Observation	Bill Cooley	Cooley/Leinhardt	
MANAGEMENT INFORMATION		... Peter Rossi ...		
AIM: To keep good records, increase rationality in decisions	Special Cases: Policy Analysis	James Coleman	Haveman-Watts	Emphasizes policy, quality-control options of administrators, boards; Over-values efficiency, undervalues tacit knowledge of staff, constiuents
	Decision-Theoretic	Marcia Guttentag	Edwards, et.al.	
	Adversary Evaluation	Tom Owens	Murray Levine	
NATURALISTIC STUDY		... Egon Guba ...		
AIM: Provide experiential understandings of complex workings of the program	Special Cases: Self-Study	Paul Dressel	Knoll/Brown	Probes complex concerns, responsive to emic issues; Subjective, poor meta-evaluation checks, unattentive to aggregate costs and benefits
	Blue Ribbon Panel	Francis Chase	Plowden Report	
	Ethnographic Case Study	Lou Smith	Stake/Easley	

Similarly, we take note of two kinds of process designs:

a. the representation of program information in testimony and indicators for management systems

b. the naturalistic and experiential study of ordinary program activity

A management information system is attractive to many large organizations. It is expected that the worth of various organizational efforts can be better judged if there is a regular flow or special study of data related to the operational and policy decisions managers are faced with. It is generally expected that personal experience will fall short of the knowledge and understanding needed and that formalistic and highly conceptual (probably abstract) representations of the program are needed.

Naturalistic studies are different in that they concentrate on the more ordinary perceptions of practitioners and citizens. Skills of observation and interviewing are usually needed. The discipline of this inquiry comes in the validation and interpretation of data. Self-studies are among the least expensive but ethnographic case studies are among the most expensive.

GETTING ORGANIZED

In most environmental education projects there is no "evaluation specialist." We have referred to such and to "evaluators" in this manual, knowing that what is to be done in a project evaluation study will often be done entirely without anyone with special training. Consultant help or technical assistance may be available, but even then the toughest part of the evaluation work will probably be done by people already in and around the program.

Let us step back and take a look. As we stated in the first chapter, someone decides that an evaluation study is needed--internal or external pressures call for it. A little inquiry confirms what is already general knowledge, full-blown evaluation studies require highly trained researchers and cost a lot of money. Even most extra-large projects do not have a large enough budget to carry out a comprehensive evaluation study. A little money, certainly not more than 2% of operating costs might be made available. And some volunteer labor, some from staff people, from students needing a graduate school project, from one or two civic minded citizens, might be mobilized. A small resource, not enough to satisfy critics or to authenticate proponents--but enough to do something worthwhile.

One of the first questions is to decide whether to keep the evaluation responsibility inside or to farm it out to somebody outside the regular program group. To stay inside or to go outside. It is a decision that needs to be made to fit the local situation.

Negotiating a Contract. If outsiders are to take a primary responsibility for the evaluation, a written agreement is highly desirable. In addition to the usual statements of purpose, delivery dates, personnel, and budget, the parties should anticipate that things will go badly, and indicate how adjustments can be made. "What could go wrong will go wrong" is a useful slogan.

A contract can be too specific and not specific enough. When the contract is too specific the evaluator will be

unable to respond to unexpected difficulties--and opportunities. If the contract is not specific enough the chances of sponsors getting what they want are reduced.

The written statement should be based on many detailed conversations, providing expectations that go beyond legal obligation. But conversations that get too detailed are likely to de-emphasize the larger policy questions, to disdain the more subtle "unmeasurable" circumstances, and the parties are likely to over-protect themselves with constraints and risk-lowering clauses that could limit the usefulness of the study. If, as usual, the conversations are not specific enough, there is reduced chance that the study will engage some of the deeper concerns of people.

Perhaps the most important question to be raised, once and again and again, is that of the purposes of the evaluation. Of course, the purpose of evaluation is to find out what is good and what is bad. But the particular questions of concern to participants, sponsors, and other constituencies need more than final judgments. They need information, interpretations, suggested alternatives. Which of these purposes shall be emphasized?

Another question to be agreed upon is that of who the audiences of the study will be. To whom will the results be circulated? Often it is difficult to identify an audience. Often it can be expected that no-one will read the evaluation report. Yet several groups may be influenced by the findings. Both attentive and almost unknowing audiences need to be discussed.

Methods of inquiry, access to data sources, confidentiality, rights to publish, and ways of amending the agreement are other topics of importance.

A PLAN OF ACTION

It is usually important to anticipate the responsibilities of the evaluation study by sketching out the steps to be taken. In his discussions of responsive evaluation, Stake used a clock as a metaphor and identified the twelve events shown in the following figure.

It was not expected that an evaluator heeding this clock would take the steps in strick order but going back and forth frequently between earlier and later steps. "Progressive focussing" Malcolm Parlett and David Hamilton called it. Nor was it expected that equal time would be spent on each. One study might devote 80% of its time to making observing program activities, whereas another devotes less than 20%.

A number of the same topics appropriate for the negotiated agreement (as described in the previous section) are appropriate for the plan of action.

It is wise to have a number of people take a look at the plan of action and make suggestions for improvement. Sometimes it is useful to give them guidelines for their critique, such as the checklist that follows the "responsive clock."

The evaluator should keep a log (or at least a calendar) of important occasions, particularly points at which decisions were made. At the conclusion of a study the evaluator often has a different recollection (or no recollection at all) of matters that influenced the study greatly. Lines of inquiry that emerged or were dropped in midstream should be described in the log or newsletter or some such. These records are valuable often to the evaluation audiences as well as to the evaluation staff.

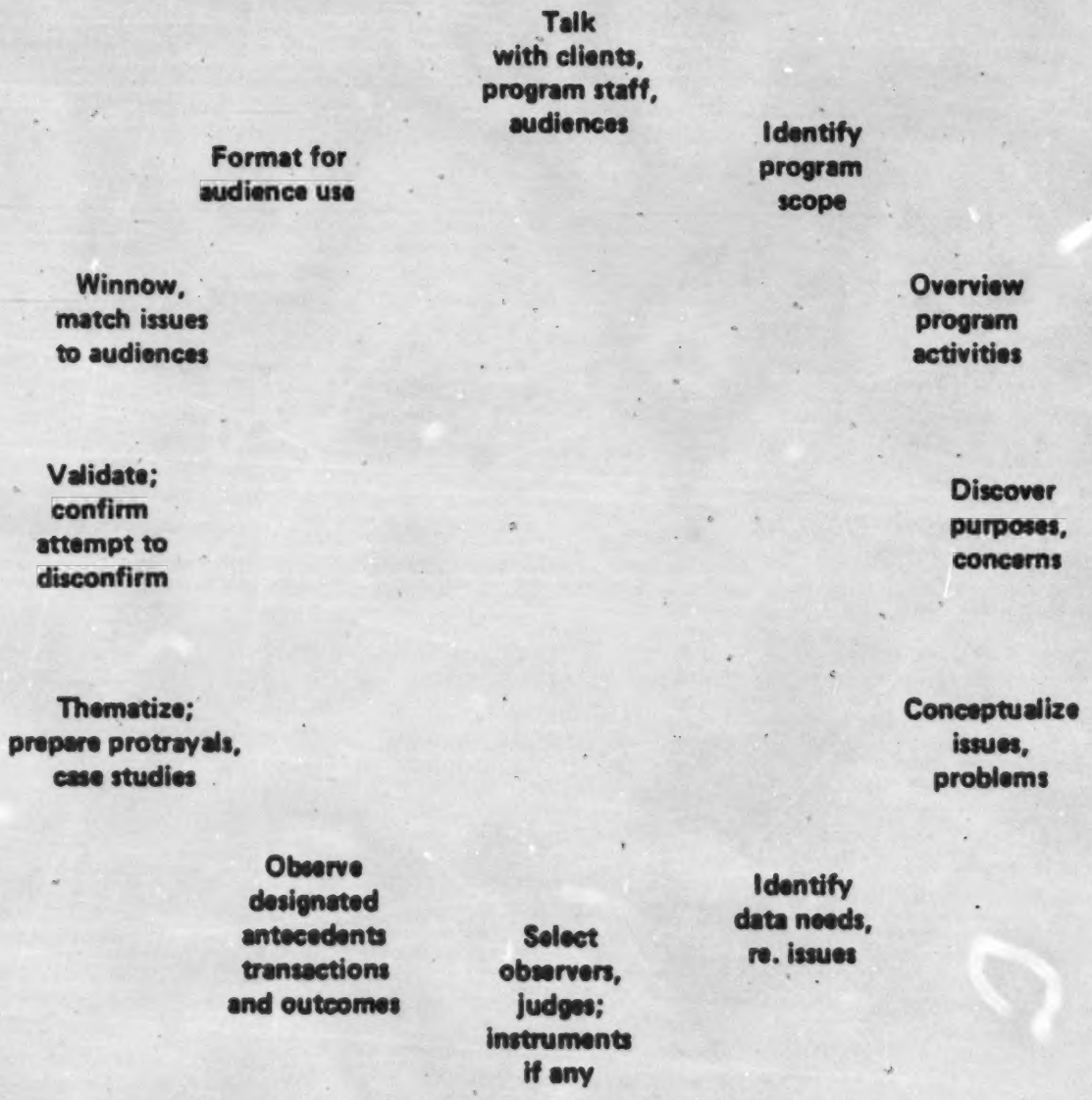


Figure 2. Prominent events in a responsive evaluation.

GUIDE FOR RATING AN EVALUATION PLAN

	Strong	Satis-factory	Weak
COMMUNICATION			
Clarity: Does the plan read well? explicit? free of jargon?			
Integrity: Do its pieces fit together? sense of unity?			
Seductivity: Does it persuade the reader to take part? intriguing?			
PURPOSE			
Rationale: Does it answer "Why evaluate?" are goals explicit?			
Plan: Are activities outlined? are plan and rationale consistent?			
Complementarity: Is it compatible with program? with other studies?			
TECHNIQUE			
Variable selection: Are selections relevant, imaginative, flexible?			
Data gathering: Are efforts design-oriented, valid, redundant?			
Reporting out: Are clients, audiences specified? responsibility?			
PRACTICALITY			
Scope: Is the plan feasible? are staff, facilities available?			
Cost: Are estimates reasonable? are benefits worth cost?			
Balance: Are resources nicely allocated? spread too thin?			

COMMENTS:

SUBSTANTIVE QUESTIONS

Certainly for a preordinate evaluation study and usually with a responsive study the evaluator wants to identify in advance certain topics, issues, or substantive questions. It usually is necessary to have routine reminders of key substantive concerns because the problems of arranging the study tend to distract attention toward methods and away from those concerns.

These organizing questions may or may not change during the course of the study, depending on the design. The questions will vary in specificity depending on how intrinsic the evaluator's interest is in the particular program and in terms of how well the program is known in advance.

The following is a simple classification of organizing questions, with illustrative questions:

1. Simple description
   - Describe the program
   - How would one classify this project?
   - How much public support (or any other property) does this program have?

2. Comparison description
   - How does this program compare to others?
   - Is there much variety among the projects?
   - Has this program changed over time?

3. Description of objectives
   - What is this program supposed to accomplish?
   - How do people differ in what they want it to do? Is it feared that jobs will be lost?

4. Descriptions of judgment
   - Did this program do its job well? Was the publicity given its work adequate?
   - Who supports and who opposes further environmental education of this type?

5. Inquiry into issues
   - Should these teaching materials be emphasized as a self-contained course or as adjunct lessons to science and social studies courses?

A CHECK LIST FOR RATING AN EVALUATION REPORT

	Well Stated	Needs Better Statement	Not Stated	Not Applicable
Area I--THE EVALUATION ITSELF				
A. Audiences to be served by the evaluation				
B. Decisions about the program, anticipated				
C. Rationale, constraints, bias of evaluators				
Area II--SPECIFICATIONS OF THE PROGRAM BEING EVALUATED				
A. Educational philosophy behind the program				
B. Subject matter to be taught				
C. Learning objectives, staff aims				
D. Instructional procedures, tactics, media				
E. Students: biography, readiness, goals, etc.				
F. Instructional and community setting				
G. Standards, bases for judging quality				
Area III--PROGRAM OUTCOMES				
A. Opportunities, experiences provided				
B. Student gains and losses				
C. Side effects and unexpected bonuses				
D. Costs: cash, resources, work, morale				
Area IV--RELATIONSHIPS AND INDICATORS				
A. Congruence between intent and actuality				
B. Contingencies, causes and effects				
C. Trend lines, indicators, comparisons				
Area V--JUDGMENTS OF WORTH OF THE PROGRAM				
A. Value of outcomes, different points of view				
B. Relevance of objectives to needs				

Readability of report _____

Usefulness of evaluation information gathered _____

Comments:

Are good steps being taken to keep study group discussions free from domination by special interest groups?

Is it time for the group to rethink the undesirability of burning high sulphur coal as an alternative to nuclear power?

These latter substantive issues may be particularly useful for organizing the evaluation study, if they do in fact draw attention to what concerns people. Sometimes it is also desirable tht they draw attention to what feature or component of the program might be adjusted to improve the results.

The development of a list of substantive questions helps the evaluator inform people what the evaluation is to attend to. But more important, it helps the evaluator get back on the tract when distracted. It is expected that the list will need updating from time to time in many studies, whereas others will be designed to stick with the questions chosen in advance.

RECORDS AND REPORTS

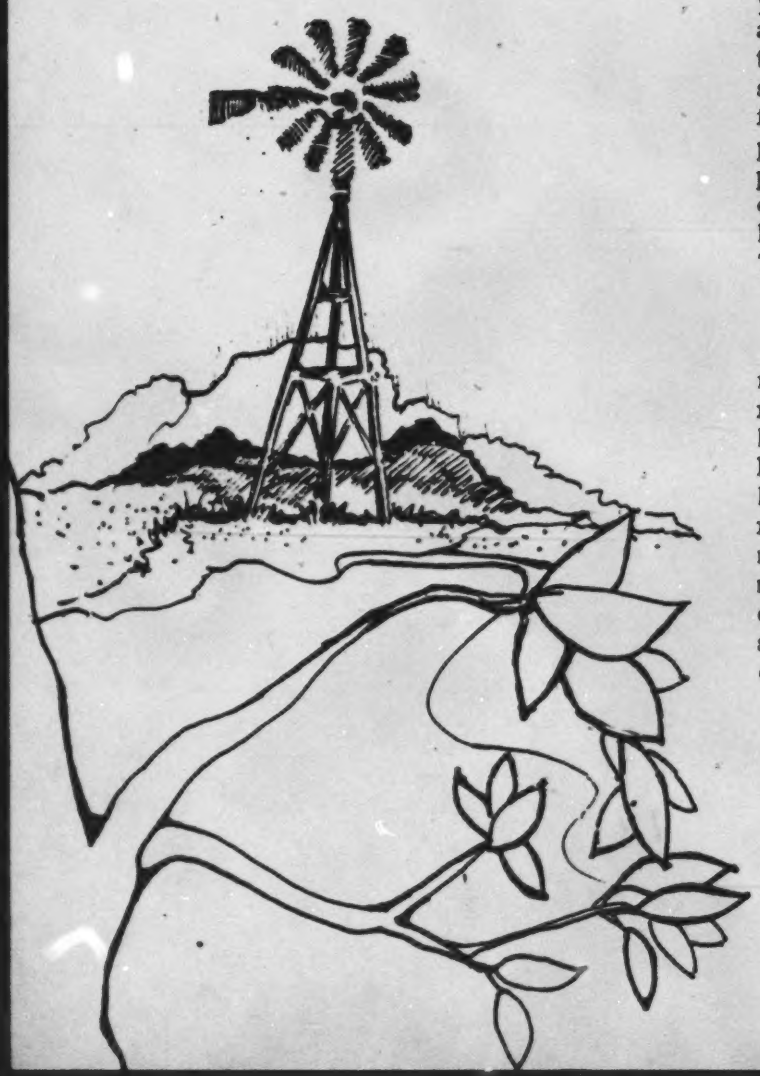
The evaluator is in a perpetual dilemma between an overload of data and an inability to substantiate conclusions. Fancy coding and retrieval systems are sometimes devised, but their expense (mostly in time) is seldom just - ified. File folders and shoe boxes are often as sophisticated as the data bank should get, storing things chronologically and by site. By frequently trying to identify emerging conclusions, and asking what additional data are needed to round out and validate those conclusions, the problems of substantiation (validation) can be reduced. Norman Denzin has described the use of triangulation for substantiating one's conclusions.

In some studies "Which story to tell?" becomes a very difficult question. There may be "multiple realities" that need to be realized. There are bound to be some issues that have to be omitted because they are too distracting or for which the observations are inadequate. The evaluator decides on what to report partly by trying out the alternatives (in various ways) on individuals who represent audience groups. This is not to suggest that we tell them what they want to hear, but we try to honor their priorities of concern.

ORGANIZING A RELS EVALUATION UNIT

Given the complexity and interdependence of contemporary environmental issues, it is apparent that we face a need for new forms of social organization. A noted scholar in the realm of social organization, the late James Thompson, anticipated such demands in an essay entitled ORGANIZING SOCIETY'S FRONTIERS. Thompson stressed the importance of "slack" in the system, that is, maintaining an organization flexible enough to react in creative fashion to new problems. He warned that demands for accountability, "getting rid of slack," would increase, with reliance on new abstractions of the problems (social indicators) increasing too.

Changes in policy at the U.S. Office of Environmental Education indicate that projects funded in the 1980s will probably be larger, more comprehensive, and supported for more than a single year. The agenda outlined below assumes that RELS-like projects of the future are likely to spend several thousand dollars per year for evaluative services. What can project directors challenged to produce evidence of many kinds expect to receive from evaluators? How can both parties honor Thompson's recommendations?



Getting program evaluation is not unlike getting information on regional environmental problems. Much of the information needed is known by someone in the region. Most of the value positions are represented thate in the community. The problems of program management can be addressed by collective inquiry, and can be served by the technology of inquiry.

Thus, in a sense, an evaluation unit is a mini-RELS. It should be a flexible system of inquiry by which one can come to better understand the workings of the organization in its community. The inquiry technology of the RELS should be a major asset for program evaluation.

EVALUATION RESPONSIBILITIES

Whether or not a formal evaluation unit is set up, people in and around the RELS will see a need for formal evaluation of some activities. It may be useful to consider what some evaluation responsibilities are likely to be.

Needs Assessment. In any organization and in any community there is a reaching for clarification as to what is really needed and what are the priorities on those needs. It has become routine for spokespersons to announce that a formal study of needs is essential. It seldom is essential, and it may do more confusing than clarifying, but a needs assessment study sometimes is desirable.

In our experience, large amounts of money have been wasted on poorly conceived needs assessment studies. Assumptions are made that what is needed under present conditions would also be needed under other conditions. Most needs are really wants, still terribly important, but not as critical for subsequent workings as the name "needs" suggests. Need assessments are too often derived from goal statements, which though stated thoughtfully and sincerely, draw attention to arbitrary and unrealistic ideals and away from the responsibility for alleviating problems. (See Stake, Easley and others; their page 19:18.)

Resource Inventory. The most attractive treatment for a problem is often beyond the resource capacity of a local community. Before we tackle a problem it is important to be realistic about what resources can be mobilized. Part of the evaluation responsibility is some form of feasibility study, possibly quite informal, noting in part whether or not resources are available to undertake various efforts at alleviation.

This is not meant to be an advocacy for those remedies for which we are best equipped (as the specialist who always finds his speciality most appropriate, or as the drunk who searches under the streetlamp where the light is better). What remedy to try depends of course on what tools and talent are available, but not necessarily, most available.

Goal Review. In common with social endeavors, RELS are likely to be endowed with a vast multiplicity of goals. Choices must be made. Trade-offs must occur. Formal evaluation can assist with the delineation of the goals of the RELS, just as the RELS assists in the delineation of

community goals. One evaluation approach taking a deliberate orientation to the suitability and relative merit of goals is the CIPP approach put forth by Dan Stufflebeam and his colleagues.

A goal review that attends only to the ultimate aims of people is likely to be of little value. A thorough study of goals examines the nature of major problems and the nature of proposed treatments. The victims of each problem have goals needing examination and the advocates of each solution have their goals too.

Program Transactions. The RELS needs to be studied continuously by its staff, participants and patrons, and in special ways on special occasions. Processes can be needlessly inefficient and ineffective, but efficient and effective processes can be largely irrelevant.

The aims of environmental education programs often embrace individual and institutional goals. Both may require baseline information for assessment of success.

A document released in 1976 by the U.S. Department of Transportation declared that "asking appropriate questions" is the key to assessment of programs marked by broad-aim goals. We second that advice, noting that it is not the elegance nor the precision of the question that counts, but its relevance. Since early and relatively minor transactions often have a lasting influence, much persistent questioning aout transactions can often be justified.

Predicaments. The RELS will get into trouble. Part of the responsibility of the evaluation unity will be to study that trouble and assist in the extrication.

It is obvious that the staff and directors of the RELS will be attending to predicaments, as well as to the other four categories of responsibility detailed above. Evaluation responsibility is shared by all, and most of all, by management people. The evaluation "unit" should be seen by them as collaborators in the study of the organization.

But the evaluation "unit" is a special collaborator. Certainly it has constituents, audiences, patrons other than the RELS managers. It must review value positions that are unpopular among managers, as well as favorites. It must seek to tell managers what they need to know, certainly not only what they want to hear.

THE STRUCTURE NEEDED

Most RELS will grow out of some other organizations and activities. Some of those will have a designated evaluation responsibility already. Most will not. And most RELS will get started without a designated evaluation person or unit. Which is all right.

There will be some RELS that start with a grand design--particularly those seeking funding from the U.S. Office of Environmental Education for comprehensive multi-year projects. And as part of that grand design propose a built-in evaluation unit. Which is all right too.

Reasons Against an Evaluation "Unit". It will be easy to plan big, to promise too much. There will be a temptation to include a design for an Evaluation Unit that will cost more than it will be worth. Evaluation information of high reliability and validity is expensive. And an evaluation unit that is set up before knowing what the information needs and problem situations will be is likely to have the wrong kinds of assets.

Whether or not to establish a formal EVALUATION UNIT then depends partly on how much there will be a routine need for evaluative information, that is, for attitude scores, for monitoring and quality control, for project history, etc., on which judgments can be based and for reports to funding agencies. To the extent that needs cannot be realistically anticipated or to the extent that one-time-only reviews or probes are more likely to be needed, the organization of evaluation work should be left unstructured until it is time to actually get a study underway.

The principal message of this chapter will be for people in charge of RELS to give some thought as to what evaluation responsibilities can be anticipated, but not to invest in evaluation resources until time to evaluate is at hand.

But that does not help a committee planning a Regional Environmental Learning System and trying to prepare a proposal for funding. Something needs to be said there about program evaluation.

Let us suppose, in the spirit of the third chapter, that the staff of LTVEC, acting for a growing number of community and school groups, was proposing the creation of a RELS. In their requests for financial support they might include a statement such as the following:

EXCERPT FROM HYPOTHETICAL RELS PROPOSAL

PROGRAM EVALUATION. The activities and services of the RELS would be reviewed both formally and informally according to an Evaluation Plan. This plan would be developed each year by staff and approved and supervised by a subcommittee of the Board of Directors. The Plan would include meeting all requirements for evaluation set by government, participating, and funding agencies.

One staff member, a person having some formal training in program evaluation, (at the time it is expected to be Associate Director Pauline Grubb) will have operational responsibility for evaluation work. It is not anticipated that additional staffing for evaluation will be made except as needed by particular studies. Those studies may be done by subcontract, by outside personnel working under the direction of staff, or by temporary or permanent staff members.

This staff member will maintain a file of issues, program components, ventures, or indicator variables which might be evaluated, plus information as to the resources available in the regon to assist in their evaluation. Frequent suggestions will be made to the staff or Board as to the possible utility of particular studies.

One of the matters needing evaluation (perhaps to be done even before the proposed startup date) has to do with the "mental" identification of the RELS with state and federal Environmental Protection Agencies. Opinions of some support group leaders is that EPA stands in the minds of many citizens as idealistic, unrealistic and indifferent to the problems of unemployment and economic development. The depth of these feelings might determine how the RELS should approach the public in its early efforts. A small number of structured interviews with a carefully selected sample is being considered.

To audit the exercise of evaluation responsibility within the RELS it is expected that the Subcommittee mentioned above will retain an evaluation specialist (with no other involvement in the work of the RELS) to inquire at least once a year as to the activities and records for program evaluation, as a fee not to exceed $200.

What $5,000 Will Buy. The best guess we have at this writing is that the optimum size of a RELS in a well populated region will reuire an annual budget of perhaps $250,000. Administrative costs should not exceed 20% of that and formal evaluation costs should seldom exceed 10% of that. It multiplies out to $5,000 per year. It seems reasonable to talk about a hypothetical RELS that sets aside $5000 a year for program evaluation purposes.

Five thousand dollars is a very large amount of money. But it does not buy much in this labor intensive world. Let us list several things that might cost five thousand dollars.

(a) ¼ the annual time of a competent specialist
(b) a half-time graduate assistant
(c) a modest survey of the community
(d) a modest regression study
(e) a small case study of the program

Perhaps we should repeat that only one of those small purchases is available for our estimated evaluation budget. Obviously it is important to be selective.

But it is also important to acknowledge that there are no fixed fees in this line of work. One can sometimes get a better study for a thousand dollars than for twenty thousand. One important difference is whether or not one can draw on volunteer labor, people who have other reasons than money for helping out. People already on salary, retired people, spouses, and students are among those who often can be drawn into the evaluation work at low cost. They usually will need coaching and coordination, but with careful arrangement, that can usually be obtained for reasonable sums.

To hire people specially trained in evaluation work is likely to yield higher quality work, but if those people are expected to carry out the bulk of the evaluation activity, and if they charge appropriately for their time, they will quickly exhaust the available funding.

Most evaluation specialists will advise the RELS people to commit themselves early to the evaluation information they will need so that time and opportunity are available to make the measurements. This makes a lot of sense. But it also often defies the reality of not knowing what information will be needed, what requirements will be most pressing, and what problems will be most vexing. If the evaluation studies are to serve the needs of the people operating and benefitting from the RELS, it is unwise to commit evaluation resources far in advance.

Another problem here is the turn-around time of research studies. It is regularly found that people very much interested in evaluation information at the time the study is planned have quite different interests by the time the results come in. This problem cannot be diminished much by rescheduling the study or shortening its duration. What evaluation people study or shortening its duration. What evaluation people have to do is to organizing the studies around those questions that appear to be of relatively durable interest.

All this is to say that the evaluation planning may be done too far in advance and not far enough. It may rely too much on volunteer and amateur labor, and not enough. Since only a limited purchase is usually possible anyway, it seems best for the RELS plan to clearly indicate: where responsibility for formal program evaluation will lie; how assurance will be made that that responsibility will be exercised; that there will be a regular review of the needs for evaluation studies; and that there are known resources outside the organization that can be drawn on for particular studies that may become needed.

EVALUATION NETWORKS

Part of the effectiveness of the strategy outlined above depends on a knowledge of the evaluation resources that exist in one's own region and that can be tapped by telephone or mail.

Paul Meadows, a distinguished sociologist, visualized economic and social development as testing a "delicate web of human acceptance." The development of an evaluation resource indeed tests such a web. We have found that most of the recent literature on "networks" is relevant to the development of resources to help with program evaluation.

Cohen and Lorentz, contributing to that literature, stressed that the planning and designing of people networks was (in 1977) still "in its infancy." They saw such networks as voluntary associations in which a wide range of participants joined together out of a sense of enlightened self-interest (again comparable to the creation of the RELS itself).

Much of the literature on networks and networking is identified with the concept of "temporary systems" and the alleged existence of "invisible colleges." Antecedents of

these terms are found in organizational theory and studies made by the research community. We visualize another type of network, one which would be deliberately open to new people, to the addition of new resources.

An outstanding "futurist," Hazel Henderson, described this form of network as having no headquarters, no formal leader, and no chains of command. It is also marked, she asserted, by free-form, self-organizing principles and is concerned with "issues, ideas, and knowledge." Henderson's analysis honors Thompson's call for retaining slack in the ystem. A word of caution should be spoken, though.

Henderson argued that emerging networks have received scant attention from organizational theorists because they are too ephemeral, seemingly lacking substance or structure. We too are doubtful that networks tied closely to the ongoing operations of RELSs could be free-floating and dependable. We urge the RELS people to prepare themselves to draw (from time to time) from existing networks of evaluation specialists, creating small temporary systems as needed to carry out the one-time-only evaluation work.

Members of existing evaluation networks are to be found on any campus, in any large school district, in any state government. Finding dependable resources, of course, is more difficult. This is a major part of the responsibility of the preparatory work, identifying those resource people and centers that can be counted on for help. Personal discussions are needed, some traveling around is to be expected, some careful study of their "portfolios" of work completed should occur.

On the following page we have listed some people we have found to be considerate and competent. They are not necessarily the best, but ones we have known and admired. They have agreed to discuss program evaluation and to help inquirers get in touch with other evaluation people.

PROGRAM EVALUATION RESOURCE PERSONS AND CENTERS

The people named here have agreed to help inquirers identify materials and people for evaluating programs of environmental education.

Alabama	Theodore Pinnock, Motton Hall, Tuskegee Institute, Tuskegee 36088
Alaska	Terry Elofson, 148A Juneau Ave, Fort Richardson 99505
Arizona	Len Cahen, Assoc Dean of Ed, Arizona St U, Tempe 85281
California	Center for the Study of Eval (Adrianne Bank), 145 Moore Hall, UCLA 90024
California	Far West Lab (Paul Hood), 1855 Folsom St, San Francisco 94103
Colorado	Mary Lee Smith, 1006 6th St, Boulder 80302
Connecticut	Bob Rippey, Res in Health Ed, Rm AMO 33, U of CT Med Ctr, Farmington 06032
D.C.	Barbara Kres Beach, 6705 Beacon Lane, Falls Church, VA 22043
Georgia	David Payne, College of Ed, U of Georgia, Athens 30602
Hawaii	Arthur King, CRDG, U of Hawaii, 1776 University Avenue, Honolulu 96822
Illinois	CIRCE (Claire Brown), 270 Ed Bldg, U of Illinois, Urbana 61801
Illinois	Herb Walberg, U of Illinois, College of Ed, Box 4348, Chicago 60680
Indiana	Ctr on Eval, Dev & Res, (Bill Gephart), PDK, P.O. Box 789, Bloomington 47402
Indiana	Indiana Center for Eval (Bob Wolf), School of Ed, Indiana U, Bloomington 47401
Iowa	Joe Steele, ACT, P.O. Box 168, Iowa City 52243
Kansas	Yvonna Lincoln, AFHE Dept, 1 Bailey Hall, U of Kansas, Lawrence 66045
Kentucky	Joseph Petrosko, School of Ed, U of Louisville 40208
Louisiana	Bert Wilkins, Adv Studies & Res, 324 Chem Eng, LA St U, Baton Rouge 70803
Maine	Betsy Hutchins, P.O. Box 270, York 03909
Maryland	Gil Austin, UM-Baltimore Co, EM-007, 5401 Wilkens, Baltimore 21228
Massachusetts	Huron Institute (Eleanor Farrar), 123 Mt. Auburn St, Cambridge 02138
Massachusetts	Higher Ed Study Group at EDC (Malcolm Parlett), 55 Chapel St, Newton 02160
Michigan	Eval Center (Jim Sanders), Western Michigan U, Kalamazoo 49008
Missouri	CEMREL (Don Miller), 3120 59th St, St. Louis 63139
Missouri	Hulda Grobman, St. Louis U Med Center, 1402 S Grand, St. Louis 63104
Minnesota	Wayne Welch, Psych'l Fndns of Ed, 204 Burton Hall, U of MN, Minneapolis 55455
Minnesota	Prog Eval Res Ctr (Tom Kiresuk), 501 S Park Ave, Minneapolis 55415
Montana	Gladys Elison, Missoula County Court House, 200 W Broadway, Missoula 59801
Nebraska	Bob Brown, TC 21, U of Nebraska-Lincoln 68588
New Hampshire	Al Elwell, Res Studies, U System of NH, Lee Center East, Durham 03824
New Jersey	ETS (Marianne Amarel, Garlie Forehand), Princeton 08540
New Mexico	Everett Edington, Box 3AP, NM St U, Las Cruces 88003
New York	Ed Kelly, 210 Ardsley Dr, Dewitt 13214
New York	Policy Studies in Ed (Mitch Brickell), 680 Fifth Ave, New York 10019
New York	Devel & Eval Associates, Inc (John Eggert), 700 E Water, Syracuse 13210
North Carolina	Carol Kehr Tittle, 132 Curry Bldg, School of Ed, U of NC-Greensboro 27412
North Dakota	Henry Slotnick, Office of Med Ed, School of Med, U of ND, Grand Forks 58201
Ohio	Derek Taylor, Div of R & D, Cleveland P.S., 1380 E 6th St, Cleveland 44114
Ohio	Howard Merriman, 52 Starling Court, Columbus 43215
Oklahoma	Bill Zoellick, Sunspace, Inc., P.O. Box 1792, Ada 74820
Oregon	NW Reg Ed Lab (Nick Smith, Tom Owens), 710 SW 2nd Ave, Portland 97204
Pennsylvania	LRDC (Bill Cooley), U of Pittsburgh, 3939 O'Hara St 15260
Pennsylvania	Joan Beers, Office of Supt of P.S., 1201 N Sixth St, Harrisburg 17105
Rhode Island	Junius Eddy, Consultant in Ed & the Arts, W Main Rd, Little Compton 02837
South Dakota	Arlen Gullickson, School of Ed, U of SD, Vermillion 57069
Tennessee	Robert House, Vanderbilt U, Box 6188, Station B, Nashville 37235
Texas	Gary Borich, Instr'l Systems Lab, Coll of Ed, U of TX at Austin 78712
Texas	Martyn Hotvedt, Office of Cont'g Ed, U of TX Med Branch, Galveston 77550
Utah	Blaine Worthen, Dept of Psych, UMC 28, Utah St U, Logan 84322
Vermont	Bob Carlson, Coll of Ed, 406 Waterman Bldg, U of VT, Burlington 05405
Washington	Duncan MacQuarrie, Psych Dept, Central Washington U, Ellensburg 98926
West Virginia	Ron Welty, Gilmer County Bd of Ed, 201 N Court St, Glenville 26351
Wisconsin	Tom Fox, Dept of Curric & Instr, UW, 225 N Mills St, Madison 53706
Wisconsin	Patricia Templin, Dept of Curric & Instr, UW-Milwaukee, P.O. Box 413 53201

Evaluation Technical Assistance. Since project funds should be used primarily for program operations and only in a small way for evaluation, how can RELS people make the most of the technical assistance that is available? It is important to realize that some agencies have a history of providing technical assistance of one kind or another. The funding agency should be asked. Inquiries should be made of state departments of education and universities. Many of them support evaluation centers that provide free or low cost assistance to agencies in their region.

Usually the technical assistance is available for consultation but not to do evaluation work. Often technical consultants will recommend personnel as well as methods for accomplishing the work. These recommendations should be examined carefully. If possible, other specialists and various interested parties should be consulted. The steps outlined in the previous chapter for writing a contract should be considered, even if the decision is made to do the work with "inside" people.

To the extent that RELSs are the quintessence of information systems, they will have a special opportunity to draw upon the insight and conscientiousness of people for program evaluation purposes.

What can RELS project directors challenged to produce evidence of program effectiveness expect to receive from the evaluation community? Something helpful, but often not enough. No evaluation group or plan of action can prove that even a very good project is having a substantial impact. Evaluators can provide better information, a new perception of responsibility, and some political respectability.

Sometimes these benefits will come more quickly if a formal evaluation unit, even a small one, is set up in advance. Certainly the RELS collective inquiry routines are more likely to be used effectively this way. However, the unit will be less able to deal with new evaluation responsibilities. The creation of an "evaluation responsibility," something less formal than an "evaluation unit," may more slowly allocate the resources--to greater advantage.

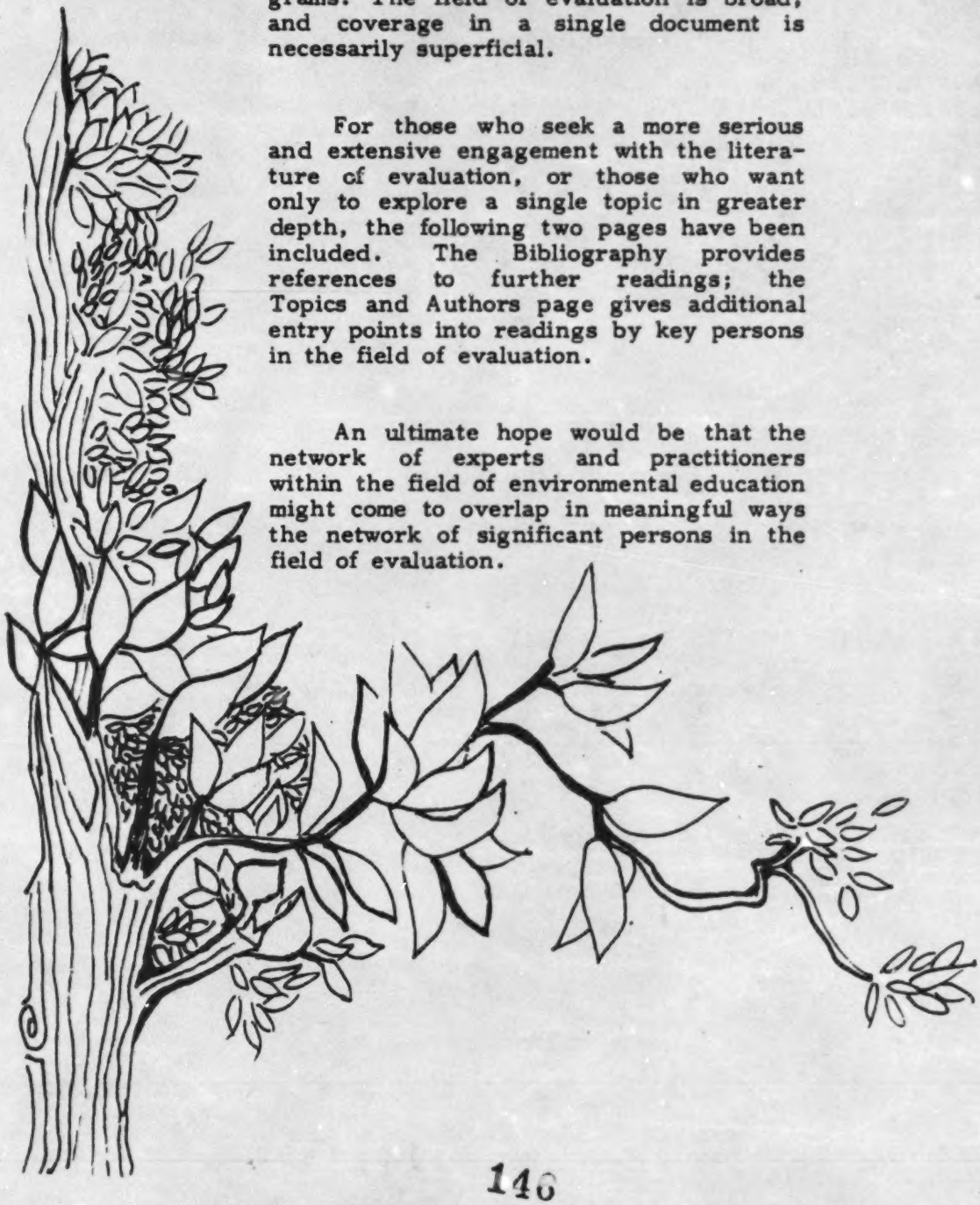
An ongoing system for monitoring program processes and impacts can draw from many different technical communities. Their different methods will not minimize the expenditure of funds or lead to entirely compatible conceptualizations and valuings, but the diverse school and community goals are more likely to be respected. Such an approach also responds to Thompson's call for maximum flexibility within the context of a changing world.

BIBLIOGRAPHY

The previous pages are intended to provide a few examples, explanations, descriptions, and teachings related to evaluation, and particularly to the evaluation of environmental educational programs. The field of evaluation is broad, and coverage in a single document is necessarily superficial.

For those who seek a more serious and extensive engagement with the literature of evaluation, or those who want only to explore a single topic in greater depth, the following two pages have been included. The Bibliography provides references to further readings; the Topics and Authors page gives additional entry points into readings by key persons in the field of evaluation.

An ultimate hope would be that the network of experts and practitioners within the field of environmental education might come to overlap in meaningful ways the network of significant persons in the field of evaluation.



EVALUATION TOPICS	SELECTED AUTHORS
Accreditation	James Carpenter
Achievement, Environment Education	U of Tennessee Environment Center
Adult Education	Grotelueschen/ Gooler/Knox
Affective Domain	David Krathwohl
Argument	Ernest House
Adversary Evaluation	Tom Owens
Attitude Scales	Marvin Shaw and Jack Wright
Bayesian Statistics	James Fennessey
Case Study Methods	Robert Stake
Causal Modeling	Hubert Blalock
Causation	Michael Scriven
Change, Measurement of	Jum Nunnally
Client Involvement	Malcolm Bush and Andrew Gordon
Community Context	Gordon Hoke
Confidentiality	David Goslin
Connoisseurship	Eliot Eisner
Construct Validity	Lee Cronbach and Paul Meehl
Control Groups	Ross Conner
Course Improvement	Lee Cronbach
Creativity Tests	Susan Crockenberg
Criterion Referenced Testing	Jason Millman
Curriculum Evaluation	Arieh Lewy
Decision Theoretic Approach	Edwards/Guttentag/ Snapper

Discrepancy Evaluation	Malcolm Provus
Ecological Factors	Stanley Lehmann
Educational Television	Martin Carnoy
Ethics	Gideon Sjoberg
Ethnography	Harry Wolcott
Experimental Design	Robert Boruch
Faculty Performance	Paul Dressel
Field Research	Leonard Schatzman and Anselm Strauss
Follow-Through Evaluation	Ernest House and others
Formative Evaluation	Michael Scriven
Gain Scores	Jum Nunnally
Generalizability	Lee Cronbach
Goal Attainment Scaling	Thomas Kiresuk and Sander Lund
Goal-Free Evaluation	Michael Scriven
Grades	Paul Dressel
Head Start	Victor Cicarelli
Illuminative Evaluation	Malcolm Parlett and Garry Dearden
Impact Checklist	U. S. General Accounting Office
Interviewing	Carol Weiss
Instructional Objectives	Jim Popham
Item Analysis	Norman Gronlund
Justice	Ernest House
Likert Scale	Norman Gronlund
Meta-Analysis	Mary Lee Smith and Gene Glass

Meta-Evaluation	Michael Scriven
Modus Operandi Method	Michael Scriven
Multivariate Analysis	Maurice Tatsuoka
Naturalistic Inquiry	Egon Guba
Needs Assessment	Robert Stake and Jack Easley
Negotiating Contracts	Robert Stake
Observation	Norwood Hanson
Occupational Training	Tim Wentling and Tom Lawson
Outward Bound	Mary Lee Smith and others
Open Education	George Hein
Operational Definitions	Robert Ennis
Organization Development	Richard Schmuck and others
Path Analysis	Otis Duncan
Policy Analysis	James Coleman
Political Factors	Ernest House
Portfolios, Self-Evaluation	Patricia Scheyer and Robert Stake
Portrayal	David Hamilton and others
Priority Allocation	Henry Riecken and others
Public Health	Thomas Bice and Robert Eighhorn
Qualitative Evaluation	George Willis
Questionnaires	Stanley Payne
Randomization	Ross Conner
Rating Scales	Marvin Shaw and Jack Wright

Responsive Evaluation	Robert Stake
Role of the Evaluator	Garlie Forehand
Secondary Analysis	Robert Boruch
School Integration	James Coleman
Shadow Study	Denny/Cotton/Storm
Social Experimentation	Henry Riecken
Social Programs	Clark Apt
Spurious Correlation	Herbert Simon
Statistical Power	John Crane
Summative Evaluation	Peter Airasian
Survey Research	Hubert Blalock
Symbolic Interactionism	Norman Denzin
Systems Approach	Marvin Alkin
Teacher Competence	Steven Kemmis and Robert Stake
Test Construction	Norman Gronlund
Time on Task	David Wiley
Title I Evaluation	Milbrey McLaughlin
Training, Evaluator Skills	National Teaching Systems
Transactional Evaluation	Robert Rippey
Triangulation	Norman Denzin
Unobtrusive Measures	Lee Sechrest
Validity of Test Means	Robert Stake
Validity of Tests	Lee Cronbach
Value-Issues in Classrooms	Lawrence Stenhouse

BIBLIOGRAPHY

Airasian, Peter W. Designing summative evaluation studies at the local level. In W. James Popham (Ed.), Evaluation in Education. Berkeley: McCutchan, 1974.

Alkin, Marvin C. Towards an evaluation model: a systems approach. UCLA: Center for the Study of Evaluation, Working Paper #4, December 1967.

Anderson, Richard C. The comparative field experiment: an illustration from high school biology. Proceedings of the 1968 Invitational Conference on Testing Problems. Princeton, NJ: Educational Testing Service, 1969, 3-30.

Apt, Clark C. (Ed.). The Evaluation of Social Programs. Beverly Hills: SAGE Publications, 1976.

Bice, Thomas W. and Robert L. Eichhorn. Evaluation of public health programs. In Marcia Guttentag and Elmer Struening (Eds.), Handbook of Evaluation Research, Volume 2. Beverly Hills: SAGE Publications, 1975, 605-620.

Blalock, Hubert M., Jr. (Ed.). Causal Models in the Social Sciences. Chicago: Aldine Publishing Co., 1971.

Boruch, Robert F. On common contentions about randomized field experiments. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 159-194.

Boruch, Robert (Ed.). Secondary analysis. In New Directions for Program Evaluation, No. 4. San Francisco: Jossey-Bass, 1978.

Broadbeck, May. Causation. In Harry S. Broudy, Robert H. Ennis and Leonard I. Krimerman (Eds.), Philosophy of Educational Research. New York: John Wiley and Sons, 1973, 412-412.

Bush, Malcolm and Andrew C. Gordon. The advantage of client involvement in evaluation research. In Thomas D. Cook and others (Eds.), Evaluation Studies Review Annual, Volume 3. Beverly Hills: SAGE Publications, 1978, 767-783.

Campbell, Donald. Reforms as experiments. American Psychologist, 1969, 24, 409-429.

Carnoy, Martin. The economic costs and returns to educational television. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 219-260.

Carpenter, James L. Accreditation evaluation and institutional change. The North Central Association Quarterly. Chicago: Volume XLV, No. 2, Fall 1970, 159-263.

Cicarelli, Victor and others. The impact of Head Start. In Clark C. Apt (Ed.), The Evaluation of Social Programs. Beverly Hills: SAGE Publications, 1976, 183-192.

Cohen, Saul and Elizabeth Lorentz. Networking; educational program policy for the late seventies. In EDC News, No. 10, Fall 1977, 1-2.

Coleman, James S. Policy Research in the Social Sciences. Morristown, NJ: General Learning Press, 1972.

Coleman, James S. Recent trends in school integration. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 305-323.

Conner, Ross F. Selecting a control group: an analysis of the randomization process in twelve social reform programs. In T. D. Cook (Ed.), Evaluation Studies Review Annual, Volume 3. Beverly Hills: SAGE Publications, 1978, 104-153.

Cooley, William W. Explanatory observational studies. Educational Researcher. October 1978, 9-15.

Cooley, William W. and Gaea Leinhardt. The instruction dimensions study: the search for effective classroom processes. Final report LRDC, University of Pittsburgh, August 1978.

Cooley, William W. and Paul R. Lohnes. Evaluation Research in Education. New York: John Wiley, 1976.

Crane, John. The power of social invention experiments to discriminate differences between experimental and control groups. In T. D. Cook (Ed.), Evaluation Studies Review Annual, Volume 3. Beverly Hills, 1978, 215, 233.

Crockenberg, Susan. Creativity tests: a boon or a boondoggle for education. Review of Educational Research, Vol. 42, 1972, 27-45.

Cronbach, Lee J. Course improvement through evaluation. Teachers College Record,64, May 1963, 672-83.

Cronbach, Lee J. Designing educational evaluations (preliminary version). Occasional Paper of the Stanford Evaluation Consortium. CA: Stanford University, April 1978, 716 pp.

Cronbach, Lee J. Test validation. In R. L. Thorndike (Ed.), Educational Measurement, 2nd edition. Washington: American Council on Education, 1971.

Cronbach, Lee J. and Paul E. Meehl. Construct validity in psychological tests. In Harry S. Broudy, Rober H. Ennis and Leonard I. Krimerman (Eds.), Philosophy of Educational Research. New York: John Wiley and Sons, 1973, 567-594.

Cronbach, Lee J. and Patrick Suppes. Research for Tomorrow's Schools: Disciplined Inquiry for Education. New York: Macmillan, 1969.

Denny, Terry, Clencie Cotton and Gary Storm. Reflections on a day at Illinois Junior High. In David Hamilton and others (Eds.), Beyond the Numbers Game. Berkeley: McCutchan, 1977, 24-246.

Denzin, Norman K. The Research Act. Chicago: Aldine Publishing Company, 1970.

Dressel, Paul. Handbook of Academic Evaluation. San Francisco: Jossey-Bass Publishers, 1976.

Duncan, Otis Dudley. Path analysis: sociological examples. In H. M. Blalock, Jr. (Ed.), Causal Models in the Social Sciences. Chicago: Aldine Publishing Co., 1971.

Edwards, Ward, Marcia Guttentag and Kurt Snapper. A decision-theoretic approach to evaluation research. In Elmer Struening and Marcia Guttentag (Eds.), Handbook of Evaluation Research, Volume I. Beverly Hills: SAGE Publications, 139-182.

Eisner, Elliot W. The perceptive eye: toward the reformation of educational evaluation. Occasional Paper of the Stanford Evaluation Consortium. CA: Stanford, December 1975.

Ennis, Robert H. Operational definitions. In Harry S. Broudy, Robert H. Ennis and Leonard I. Krimerman (Eds.), Philosophy of Educational Research. New York: John Wiley and Sons, 1973, 650-659.

Fennessy, James. Social policy research and Bayesian inference. In Clark C. Apt (Ed.), The Evaluation of Social Programs. Beverly Hills: SAGE Publications, 1976, 269-282.

Fielden, J. and P. K. Pearson. The Cost of Learning with Computers. London: Council for Educational Technology, 1978.

Fitzpatrick, Robert and Edward Morrison. Performance and product evaluation. In Robert L. Thorndike (Ed.), Educational Measurement. Second edition. Washington, D.C.: American Council on Education, 1971, 237-270.

Forehand, Garlie A. The role of the evaluator in curriculum research. Journal of Educational Measurement, Volume 3, 1966, 199-204.

Glass, Gene V. and Frederick S. Ellett, Jr. Evaluation research. In Annual Review of Psychology, Volume 31. 1980. (In press.)

Goslin, David. A. Ethical and legal aspects of the collection and use of educational information. In Proceedings of the 1970 Invitational Conference on Testing Problems. Princeton: Educational Testing Service.

Greer, W. Dwaine. A model for the art of teaching and a critique of teaching. In George Willis (Ed.), Qualitative Evaluation. Berkeley: McCutchan, 1978, 163-186.

Gronlund, Norman. Constructing Achievement Tests. Second edition. Englewood Cliffs, NJ: Prentice-Hall, 1977.

Grotelueschen, Arden D., Dennis D. Gooler and Alan B. Knox. Evaluation in Adult Basic Education: How and Why. Urbana: University of Illinois, 1976.

Guba, Egon G. Toward a methodology of naturalistic inquiry in educational evaluation. CSE Monograph #8. Los Angeles: Center for the Study of Evaluation, UCLA, 1978.

Guttentag, Marcia. Evaluation and society. In Marcia Guttentag (Ed.), Evaluation Studies Review Annual, Volume 2. Beverly Hills: SAGE Publications, 1977, 52-61.

Hamilton, David and others. Evaluation as portrayal: the T-city report. In their Beyond the Numbers Game. Berkeley: McCutchan, 1977, 262-274.

Hanson, Norwood R. Observation. In Harry S. Broudy, Robert H. Ennis and Leonard I. Krimerman (Eds.), Philosophy of Educational Research. New York: John Wiley and Sons, 1973, 164-178.

Havelock, Ronald G. A Guide to Innovation in Education. Ann Arbor, MI: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, 1970.

Haveman, Robert H. and Harold W. Watts. Social experiments as policy research. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 219-260.

Hein, George E. An Open Education Perspective on Evaluation. Grand Forks: North Dakota Study Group on Evaluation, University of North Dakota, February 1975.

Henderson, Hazel. Creating Alternatives: The Endo of Economics. Windhover, MA: Berkley Publishers, 1978.

Hoke, Gordon. Community context: working guidelines. In David Hamilton and others (Eds.), Beyond the Numbers Game. Berkeley: McCutchan, 1977, 217-218.

House, Ernest R. The Politics of Educational Innovation. Berkeley: McCutchan Publishing Corporation, 1974.

House, Ernest R. The Logic of Evaluative Argument. CSE Monograph Series in Evaluation, No. 7. UCLA, 1977.

House, Ernest R. Justice in evaluation. In Gene V. Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 75-100.

House, Ernest R. and Donald Hogben. Setting speculative snares. SRIS Quarterly, Spring 1973, 6(1), 11-13.

House, Ernest R. and others. No simple answer: critique of the follow through evaluation. Harvard Education Review, 48, No. 2, 1978, 128-160. Also in Thomas D. Cook and others (Eds.), Evaluation Studies Review Annual, Volume 3. Beverly Hills: SAGE Publications, 1978, 611-640.

Husen, Torsten. International Study of Achievement in Mathematics. New York: Wiley, 1967.

Kemmis, Stephen and Robert E. Stake. Operational vs judgmental assessment of teacher competence. In Educational Leadership, Volume 31, 4. January 1974, 322-325.

Kiresuk, Thomas J. and Sander H. Lund. Process and outcome measurement using goal attainment scaling. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 383-399.

Knoll, Robert E. and Robert D. Brown. Experiment at Nebraska: The First Two Years at a Cluster College. University of Nebraska Studies, new series, #44. Lincoln: University of Nebraska, June 1972.

Kraterwohl, David R. et al.. Taxonomy of Educational Objectives, Handbook II: Affective Domain. New York: McKay, 1964.

Lazerfeld, Paul F. and Allen Barton. Qualitative measurement in the social sciences: classification, typologies and indices. In Daniel Lerner and Harold Lasswell (Eds.), The Policy Sciences: Recent Developments in Scope and Method. Stanford: Stanford University Press, 1951, 155-192.

Lehmann, Stanley. Psychology, ecology and community: a setting for evaluative research. In Elmer L. Struening and Marcia Guttentag (Eds.), Handbook of Evaluation Research, Volume 1. Beverly Hills: SAGE Publications, 1975, 89-122.

Levin, Henry M. Cost-effectiveness analysis in evaluation research. In Marcia Guttentag and Elmer L. Struening (Eds.), Handbook of Evaluation Research, Volume 2. Beverly Hills, SAGE Publications, 1975, 89-122.

Levine, Murray. Scientific method and the adversary model: some preliminary thoughts. In American Psychologist, Volume 29, No. 9, September 1974.

Lewy, Arieh. Handbook of Curriculum Evaluation. New York: Longmans, Inc., 1977.

Lindblom, Charles E. The science of muddling through. In Public Administration Review, Volume 19, 3-22. Spring 1959.

McInnis, Noel. You Are an Environment: Teaching/Learning Environmental Attitudes. Evanston, IL: Center for Curriculum Design.

McLaughlin, Milbrey W. Evaluation and Reform. Cambridge: Ballinger Publishing Co., 1975.

Meadows, Paul. The Many Faces of Change. Cambridge, MA: Schenckman Publishing Co., 1973.

Menzel, E. W. Information transfer and intergovernmental relations. In Factors Involved in the Transfer of Innovations: A Summary and Organization of the Literature. Washington, D.C.: HUD, Office of Policy Development and Research, January 1976. Cited, 43.

Millman, Jason. Criterion referenced measurement. In W. James Popham (Ed.), Evaluation in Education. Berkeley: McCutchan, 1970, 209-398.

National Teaching Systems. Consumers' Guide to Evaluation Training Materials, Volume 2. Seaside, CA.

Nunnally, Jum C. The study of change in evaluation research; principles concerning measurement, experimental design and analysis. In Elmer L. Struening and Marcia Guttentag (Eds.), Handbook of Evaluation Research, Volume 1. Beverly Hills: SAGE Publications, 1975, 101-138.

Owens, Thomas R. Educational evaluation by adversary proceedings. In Ernest House (Ed.), School Evaluation--The Politics and Process. Berkeley: McCutchan, 1973.

Parlett, Malcolm and Garry Dearden (Eds.) Introduction to Illuminative Evaluation: Studies in Higher Education. Cardiff by the Sea, CA: Pacific Soundings Press, July 1977.

Parlett, Malcolm and David Hamilton. Evaluation as illumination: a new approach to the study of innovatory programs. In David Hamilton and others (Eds.), Beyond the Numbers Game. Berkeley: McCutchan, 1977, 3-5.

Plowden, Lady Beatrice et al.. A Report of the Central Advisory Committee on Children and Their Primary Schools. London: Her Majesty's Stationery Office, 1967.

Popham, James W. Educational Evaluation. Englewood Cliffs, NJ: Prentice-Hall, 1975.

Provus, Malcolm. Discrepancy Evaluation. Berkeley: McCutchan, 1973.

Riecken, Henry W. and others. The priority score allocation design. In Marcia Guttentag (Ed.), Evaluation Studies Review Annual, Volume 2. Beverly Hills: SAGE Publications, 1977, 114-124.

Rippey, Robert (Ed.) Studies in Transactional Evaluation. Berkeley: McCutchan , 1973.

Rogers, Everett. Innovation in organizations: new research approaches. Paper delivered at the 1975 Annual Meeting of the American Political Science Association, San Francisco, September 1975. Cited, Factors Involved in the Transfer of Innovations. Op. cit., 67.

Rossi, Peter H., Howard E. Freeman and Sonia R. Wright. Monitoring program implementation. Chapter 4 in their Evaluation: A Systematic Approach. Beverly Hills: SAGE Publications, 1979.

Schatzman, Leonard and Anselm Strauss. Field Research: Strategy of a Natural Sociology. Englewood Cliffs, NJ: Prentice-Hall, 1973.

Scheyer, Patricia Templin and Robert E. Stake. A program's self-evaluation portfolio. Studies in Educational Evaluation. 2, (1), Spring 1976.

Schmuck, Richard A., Philip J. Rumkel, Jane H. Arends and Richard L. Arends. The Second Handbook of Organization Development in Schools. Palo Alto: Mayfield Pub.Co., 1977.

Scriven, Michael. The methodology of evaluation. In Robert E. Stake (Ed.), Perspectives of Curriculum Evaluation. AERA Monograph Series on Curriculum Evaluation, No. 1. Chicago: Rand McNally and Co., 1967, 39-83.

Scriven, Micahel. Causes, connections and conditions in history. In Harry S. Broudy, Robert H. Ennis and Leonard I. Krimerman (Eds.), Philosophy of Educational Research. NY: John Wiley and Sons, 1973, 439-458.

Scriven, Michael. Prose and cons about goal free evaluation. Evaluation Comment, December 1972. Also in W. James Popham (Ed.), Evaluation in Education: Current Applications. Berkeley: McCutchan, 1974.

Sechrest, Lee. Use of innocuous and noninterventional measures in evaluation. In Blain R. Worthen and James R. Sanders. Educational Evaluation: Theory and Practice. Worthington, OH: Charles A. Jones Publishing Company, 1973,288-297.

Shaw, Marvin E. and Jack M. Wright. Scales for the Measurement of Attitudes. New York: McGraw Hill, 1967.

Simon, Herbert A. Spurious correlation: a causal interpretation. In Humbert M. Blalock (Ed.), Causal Models in the Social Sciences. Chicago: Aldine Publishing Co., 1971.

Sjoberg, Gideon. Politics, ethnics and evaluation research. In Marcia Guttentag and Elmer L. Struening (Eds.), Handbook of Evaluation Research, Volume 2. Beverly Hills: SAGE Publications, 1975, 29-54.

Smith, Louis M. An evolving logic of participant observation, educational ethnography and other case studies. In Lee Shulman (Ed.), Review of Research in Education, Volume 6. Chicago: Peacock Press (In press.).

Smith, Mary Lee and Gene V Glass. Meta-analysis of psychotherapy outcome studies. In Thomas D. Cook and others (Eds.), Evaluation Studies Review Annual, Volume 3. Beverly Hills: SAGE Publications, 1978, 684-692.

Smith, Mary Lee, Roy Gabriel, James Schott and William L. Padia. Evaluation of the effects of Outward Bound. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 400-424.

Stake, Robert. The case study method in social inquiry. In Educational Researcher, February 1978.

Stake, Robert E. Negotiation of agreements to do evaluation studies. In his Evaluation Educational Programmes: The Need and the Response. Washington, D.C.: OECD Publications Center, 1976.

Stake, Robert E. The validity of district-wide test means. Proceedings of the Second National Conference on Testing, September 21-22, 1978, San Francisco. (Edited by Richard M. Bossone.) New York: CAE, City University of New York, 1978.

Stake, Robert E. Program evaluation, particularly responsive evaluation. Occasional Paper #5. Kalamazoon, MI: Western Michigan University, November 1975.

Stake, Robert E. and John A. Easley, Jr. Case Studies in Science Education. U.S. Government Printing Office (two volumes plus Executive Summary), July 1978.

Stenhouse, Lawrence. Controversial value-issues in the classroom. In David Hamilton and others (Eds.), Beyond the Numbers Game. Berkeley: McCutchan, 1977, 104-106.

Stufflebeam, Daniel L., et al.. Educational Evaluation and Decision-Making. Itasca, IL: Peacock, 1971.

Tatsuoka, Maurice M. Multivariate Analysis: Techniques for Educational and Psychological Research. New York: John Wiley & Sons, Inc., 1971.

Thompson, James. Society's frontiers for organizing activities. In Public Administration Review, Volume 33. July/August 1973, 327-335.

Tyler, Ralph W. Basic Principles of Curriculum and Instruction. Chicago: University of Chicago Press, 1949.

U.S. General Accounting Office. Assessing social program impact evaluations: a checklist approach. PAD-79-2. October 1978.

University of Tennessee Environment Center. Ideas and Activities for Teaching Energy Conservation: Grades 7-12. Knoxville, TN: The Center, 1977.

Weiler, Daniel and others. A public school voucher demonstration: the first year of Alum Rock. Summary and conclusions. In Gene V Glass (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1976, 279-304.

Weiss, Carol H. Interviewing in evaluation research. In Elmer L. Stuening and Marcia Guttentag (Eds.), Handbook of Evaluation Research, Volume 1. Beverly Hills: SAGE Publications, 1975, 355-396.

Wentling, Tim L. and Tom E. Lawson. Evaluating Occupational and Training Programs. Boston: Allyn & Bacon, 1975.

Wiley, David E. Another hour, another day: quantity of schooling. In Marcia Guttentag (Ed.), Evaluation Studies Review Annual, Volume 1. Beverly Hills: SAGE Publications, 1977, 434-476.

Wolcott, Harry. Criteria for an ethnographic approach to research in schools. In John L. Roberts and Sherrie K. Akinsanya, Educational Patterns and Cultural Configurations. New York: David McKay and Co., 1976.

Wolf, Robert L. The application of select legal concepts to educational evaluation. Unpublished PhD dissertation, University of Illinois, 1974.

Distribution

Copy No.	
1 - 6	Mr. Walter Bogan, Director Office of Environmental Education 400 Maryland Ave. S. W. FOB #6, Room 2025 Washington, D. C. 20202
7 - 8	Mr. George Coates Office of Environmental Education 400 Maryland Avenue S. W. FOB #6, Room 2025 Washington, D. C. 20202
9	Dr. Alexander Christakis University of Virginia Engineering Science and Systems Department Room 234 A & M Building
10	Bro. Raymond Fitz Office of the President University of Dayton Dayton, Ohio 45469
11	Dr. H. Grant Goodell Department of Environmental Sciences Clark Hall University of Virginia
12	Dr. R. W. House Box 6188, Station B School of Engineering Vanderbilt University Nashville, Tennessee 37235
13	Dr. Robert Waller Department of Business University of Northern Iowa Cedar Falls, Iowa 50613
14	Office of Sponsored Programs Madison Hall University of Virginia
15 - 24	J. N. Warfield Department of Electrical Engineering University of Virginia

Distribution (cont.)

25 - 26 MS E. H. Pancake
Science/Technology Information Center
Clark Hall
University of Virginia

27 RLES files

28 Professor Robert Stake
CIRCE
College of Education
University of Illinois
Urbana, IL 61801

29 Dr. Tom Hastings
CIRCE
College of Education
University of Illinois
Urbana, IL 61801

30 Dr. Bela Banathy
Far West Laboratory
1855 Folsom Street
San Francisco, CA 94103

UNIVERSITY OF VIRGINIA

School of Engineering and Applied Science

The University of Virginia's School of Engineering and Applied Science has an undergraduate enrollment of approximately 1,000 students with a graduate enrollment of 350. There are approximately 120 faculty members, a majority of whom conduct research in addition to teaching.

Research is an integral part of the educational program and interests parallel academic specialties. These range from the classical engineering departments of Chemical, Civil, Electrical, and Mechanical to departments of Biomedical Engineering, Engineering Science and Systems, Materials Science, Nuclear Engineering, and Applied Mathematics and Computer Science. In addition to these departments, there are interdepartmental groups in the areas of Automatic Controls and Applied Mechanics. All departments offer the doctorate; the Biomedical and Materials Science Departments grant only graduate degrees.

The School of Engineering and Applied Science is an integral part of the University (approximately 1,400 full-time faculty with a total enrollment of about 14,000 full-time students), which also has professional schools of Architecture, Law, Medicine, Commerce, and Business Administration. In addition, the College of Arts and Sciences houses departments of Mathematics, Physics, Chemistry and others relevant to the engineering research program. This University community provides opportunities for interdisciplinary work in pursuit of the basic goals of education, research, and public service.